



W.R.C. Larson

# COMMON DISORDERS

— WITH —

## Rational Methods of Treatment

INCLUDING

*Diet, Exercise, Massotherapy, Baths  
ETC.*

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“Food Value of Meat,” “Physical Training as the  
Basis of Health, Strength and Grace,”  
“Breathing and Life”  
Etc., Etc.

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## PREFACE.

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From age to age the race changes its mind. The cherished beliefs of one generation are laughed to scorn by the next; and the wildest dream of one century is made commonplace by the achievement of the one that follows. From age to age man's conception of the universe of life of his own body changes.

And, perhaps, in no respect has this change of viewpoint been more marked than in respect to disease. Bodily disease has been at various times and in various places attributed to devils, to witches, to outraged gods, to the attacks of the envious spirits of the dead, to heredity and to many other causes.

But at last men have reached a state of enlightenment in which they realize that the human body is a machine—none the less a machine because made of flesh instead of iron; that the proper working of that machine is health; its derangement, disease and its stoppage, death. They are able to grasp the great principle that disease means merely that the conditions governing the mechanism have not been met.

A steam engine needs coal and clean water and removal of the ashes. These are among the condi-

tions. They must be met. If we feed the steam engine mineral water, as is often done through ignorance; some day the pipes get clogged and the engine blows up. If we fail to remove the ashes—if we fed the steam engine on cobblestones instead of coal—what would happen? And so in man. The conditions are simple enough. Proper food, pure water, oxygen, bodily activity, contentment—that is all. When these are not met disease, sooner or later, is the result.

Now, if this be true, disease comes not from without, but from within. It is not the result of devils or gods, or ghosts or witches or fetishes or microbes (which is the latest fetish), but merely a derangement of that complex machine called the human body.

But what is disease? We believe that, in the light of modern research, this question can be answered in definite terms as follows:—Disease is the effort of the organism to throw off retained waste matter. A brief explanation may make this clear.

Of the matter taken into the body as food a certain portion is converted into tissue—blood, bone and muscle. The remainder—the part of the food not used—becomes waste matter. The body itself is constantly breaking down, and the wornout matter resulting from this process is also waste. This total waste—waste resulting from tissue change and the waste and undigested residue of the food—are matters for excretion. For this excre-

tion, there are four avenues of egress—the skin, the lungs, the bowels and the kidneys.

Under normal conditions—that is, in health—the total waste is constantly being carried off by these four excretory organs—skin, lungs, bowels and kidneys. This condition, however, is rare. Usually the food taken is excessive in quantity and of such quality as to contain far too much indigestible and innutritious matter. Thus the amount of waste and innutritious matter taken into the body is excessive. At the same time, the excreting organs, owing to various conditions, such as lack of ventilation, insufficient water drinking, bodily inactivity, constipation and other causes, are less active than they should be, and are not able to carry off the entire amount of waste produced. In a word, the waste taken in and made by the body is excessive and the amount carried off is insufficient. There is thus a retention of waste matter within the body. This retained waste is the cause of all disease.

In the strict sense, there is but one disease—one disease, with many and varied symptoms. That is the effort of the organism to throw off accumulated waste matter.

There are many varieties of waste matter. The particular character of the matter retained and accumulated depends upon the functional peculiarities, the habits, the clothing and the climatic and social influences surrounding the individual. The

#### COMMON DISORDERS.

accumulation may occur in any part of the body—in any organ or tissue. The specific name given to the disorder depends upon three things—the exact nature of the matter deposited, upon the location of the deposit and upon the peculiar manner in which the organism tries to eject it.

So much as to the nature and cause of disease. And upon this conception of disease is based the plan of treatment known as the physiologic, the rational or the hygienic system. Regarding disease as a beneficent process—an effort of the system to rid itself of poisonous retained waste—every effort is made to assist nature instead of combatting and hampering the process through officially “controlling the symptoms.”

And results of treatment according to this system would seem to justify the claim that at last, after many vain theories, the true nature, causation and cure of disease have been discovered.

During the last few years the author of this book, who is also the editor of Health-Culture, has written for that magazine articles dealing with various phases of prevention and healing and with physical development. Requests have been received from readers all over the world that certain of these articles should be published in more permanent form. The response to this request is the present book, in which, carefully revised and expounded, are presented various chapters dealing with prophylaxis treatment and development from

PREFACE.

the standpoint of a non-sectarian student of the human body and its activities.

This book is necessarily incomplete and fragmentary. It is presented not as a systematic treatise on disease, nor as, in any sense, a substitute for the services of the skilled medical man, whose advice should be sought in all cases where the simple methods herein described do not bring about the desired relief.

That the book may be instructive and helpful to many sufferers is the sincere wish of

THE AUTHOR.



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# COMMON DISORDERS.

## Introduction.

(Diagrams Prepared Especially for this Work by the Author)

The human body is not a unit, but an aggregation of a vast number of infinitely small bodies called cells. Each of these cells is a separate and distinct individual. Each is reproduced from a parent cell, lives out its life, reproduces others like itself, and dies, quite independent of the general life of the body, of which general life it is an infinitesimal portion.

The body may be compared to a vast community, consisting of countless millions of individuals, divided like workmen and soldiers into gangs and armies. The various organs correspond to the armies and gangs, for each organ is simply an aggregation of a vast number of individual cells. Each cell has its specific duty. Some stand like soldiers in a row. Others are like bricks in a wall, others like cobblestones in a pavement. Still others have active duties as workers, builders, messengers, carriers, like the red cells of the blood (see figure 5, a, b, c), conveying oxygen from the lungs to the tissues and carbon dioxide from the tissues to be eliminated by the lungs.

Other cells, like the cells composing muscular

tissues, have the power of changing their form under certain stimuli, becoming shorter and broader. The phagocyte, or warrior cells, the large white cells of the blood (see figure 6) are intrusted with the duty of protecting the body against the action of various



Fig. 1.



Fig. 2



1. Simple cell. a, Cell body. b, Nucleus. c, Nucleolus.
2. One method of cell reproduction, showing various stages.

poisons. Then there are the nerve cells (see figure 7), whose function it is to unite together, like a line of men clasping hands, and convey messages to distant organs and tissues.

#### LIFE AND DEATH.

Such are a few of the many activities of these infinitely small creatures, whose united efforts result in what we call the life of the body. But the life of the cells themselves is very short. They are constantly being produced and constantly dying quite independent of the general life which they sustain. In fact, a man's body actually dies faster during his life than it does after his death. After the death of the body the life of the ultimate organisms, the cells, continues in other associations, either animal or plant. In reality there is no such thing as death, for the state that people think of when they speak of a man as being dead does not exist. The dead body is not like a stone. It is rather a vast community, teeming with countless



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

3. Characteristic cells of muscular tissue.

4. Cartilage cells.

5. Red cells (oxygen carriers) of the blood. a, Cell showing depressed centre. b, Mid section of cell, showing thinness at centre. c, Roll of cells as they appear on the field of the microscope.

6. White blood cells, (Phagocytes or "Warrior Cells") whose function it is to protect the body against infection.

7. Various forms of nerve cells, unipolar, bipolar and multipolar. (d) Cells from human cerebellum. e, Ganglionic cells from human spinal cord. f, Neuraglia cells from spinal cord of man. g, Neurons.

millions of active workers. These cells have been heretofore working to one common purpose. Death simply means that, instead of working co-operatively, they are disorganized. The terms life and death, as applied to the body, receive an entirely new meaning in the light of modern scientific research.

#### THE HUMAN BODY A VAST COMMUNITY.

The human organism, then, corresponds to a vast army, the various organs to regiments and the individual cells to the soldiers and laborers, each regiment or "gang" having its specific duty. Their perfect co-operation means health. When any regiment fails to do its duty, or when its individual members cease to reproduce, or reproduce others less fit than themselves to do their work, disease is the result.

Such failure of a regiment of cells (that is, of an organ) to do its duty is always due to a failure of the individual cell, just as, in an army, the victory depends upon the health and efficiency of each soldier. The health of the body, then, is the sum total of the health of the cells which constitute the body. It follows, then, that to secure the health of the cell is to maintain the body in the highest health.

What is the condition of cell health? It may be expressed in a word—proper nutrition. Proper nutrition means that the individual cell, whether of bone, mucous membrane, muscle or nerve, receives a full supply of healthy blood. Dysemia, or abnormal change in the ingredients of the blood, is

a condition which precedes all diseases. Given a full quantity of normal blood, circulating freely among the tissues, and proper nutrition is the result.

The circulation of the blood is one of the most interesting and important of the bodily functions. From the rhythmically beating heart the stream of blood passes directly into the elastic arteries, the expansion and subsequent recoil of which forces the fluid onward through tubes of smaller and smaller dimensions, until at last the microscopic capillaries are reached. These capillaries lead into the veins, through which the blood, depleted of its oxygen and laden with poisonous gases accumulated in the tissues, is returned to the heart. This impure blood is then carried through the pulsating arteries into the blood vessels leading to the lungs, from which it returns to the heart purified of its poisonous accretions and laden with life giving oxygen. Three times in each minute is this circuit from heart to tissues made by the blood, the blood carrying oxygen to the tissues for their upbuilding, and at the same time relieving them of their poisons, which are carried to the lungs, there to be given up and exhaled with the outgoing breath. A moment's thought will show the importance of pure blood and active circulation as a means of maintaining the body in health.

How can such a quality of blood and such activity of circulation be secured? Several things are necessary. In the first place, proper feeding. The

food should be plain, simple and not excessive in quantity.

Another important requisite of proper nutrition

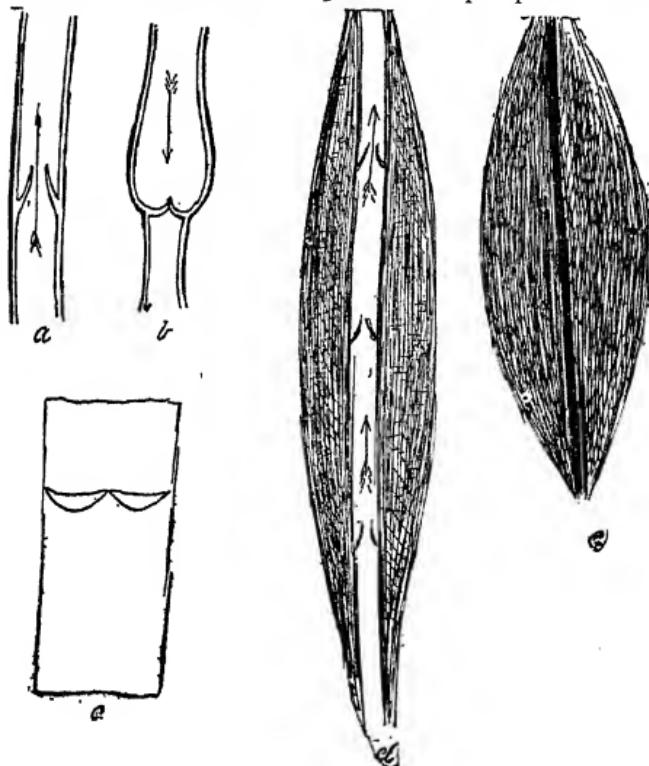


Fig. 8.

Fig. 8—*a*, Section of vein, showing valve open to on-flowing blood. *b*, showing valves closed against backward flow. *c*, vein cut open and extended, showing inner surface. *d*, course of vein between muscles. *e*, showing effect of shortening muscles.

is normal breathing. This is rare. Not one person in a hundred stands properly or breathes properly.

Without a full supply of oxygen in the lungs the function of the blood cannot be properly performed, and cell deterioration and death are the result.

A third essential to proper nutrition is muscular activity. This operates in several ways. First, by the general stimulation of all the functions through mechanical activity and increased demand for nutriment. Second, through direct acceleration of the circulation by the intermittent pressure upon the veins. In most of the medium sized veins are valves (see figure 8, a, b, c) opening toward the heart. The purpose of these valves is to prevent the blood from flowing backward in the veins (see figure 8, b). The pressure of the muscles in activity (broadening while shortening) produces pressure on the veins. This pressure forces the blood onward toward the heart, and the valves prevent its backward flow. The alternate contraction and relaxation of the muscles thus have an important effect in hastening the blood onward toward the heart.

But, while muscular activity is essential to health, violent exercise or excessive development of the muscular system is not only useless, but absolutely dangerous to the health and life of the individual.

"The term physical training to most people means muscular development. But muscular development does not mean health. In fact, it does not always mean strength; for strength depends, not upon the amount of muscular tissue, but upon

the nervous energy of the individual. Muscular development simply is a distinct disadvantage to the owner and a menace not only to his health, but often to his life. This is true, not because the large muscles are, in themselves, undesirable, but because the excessive development is produced by a method which is in itself unphysiological and injurious.

"A brief explanation will make this clear. Muscular development can be gained only by increasing the nutrition of the muscle. Now this can be done in either one of two ways. One, the natural method, is to so regulate the diet and general system that the entire body is thoroughly well nourished, each of the organs and tissues receiving its full share. A very moderate amount of exercise then suffices to keep the muscular system well fed without depriving the vital organs of their needed supply of food. With a well nourished body and full breathing, violent muscular exercise is not necessary to proper maintenance or development of the muscular system.

"The usual method of acquiring muscular development is by rapid and vigorous muscular contractions, maintained to the point of fatigue. Little or no attention is paid to the diet or the condition of the alimentary and excretory organs. Thus the general nutrition of the body is not materially increased. At the same time the exercise taken has created an imperative demand for nutriment on the part of the exercised muscles. To meet this artificially created demand nutrient matter needed

by the internal organs is sent to the depleted organs. The vital organs, thus regularly robbed of their natural and needed food supply, are starved and weakened to such an extent that their structural organization undergoes degenerative changes and they thus become a ready prey to disease. The constitutional weakness and the lowered vital resistance of trained athletes is a well recognized fact among practical medical men. In addition to this the vital organs are given many additional pounds of muscular tissue to feed and care for, thus at the same time reducing their capacity and increasing their duties.

"Thus the really important organs, the organs through the activity of which life is maintained—lungs, stomach, intestines and liver—are drained to feed a huge mass of unnecessary muscle.

"In the light of this very simple and obvious physiological principle it is easy to understand why the excessively developed athlete dies in early life. In a system of physical training based upon physiological principles, such a diversion of the nutrient matter from the vital centres to those merely subsidiary members would be impossible. The scientific training of the body means a larger life, but 'physical culture,' as often taught and practised, is not only a menace to health, but a frequent cause of death."\*

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\*Extract from the introduction to a work by the author, entitled  
"Physical Training as the Basis of Health, Strength and Grace."

# MASSAGE.

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## CHAPTER I.

We have seen that the conditions of perfect nutrition are proper food, full breathing and muscular contraction. But there are many sufferers from defective nutrition to whom physical exertion sufficient to produce a marked effect upon nutrition would be impracticable. With reference to those the question arises:—Is there no other means by which the same result as regards the nourishment of the body may be attained without such muscular exertion as would be a dangerous tax upon a patient of lowered vitality?

The question can be answered in the affirmative. In massage we have an agency which does for the tissues all, and in some respects more than mere muscular contraction can do. Proper massage, in addition to normal diet and full breathing, will give results in improved nutrition which are obtainable by no other means.

Massage, or systematic manipulation of the body, is among the most ancient of curative agencies. There is evidence that massage was in use by the Chinese about 3000 B. C. In fact, it is likely that both massage and the so-called "Swedish movement" are based upon an ancient Chinese work, a translation of which, entitled "The Cong Fu of the Tao Tse," appeared in French about a century ago.

Prof. Dujardin Beaumetz, in his lectures on massage, says:

"It can easily be shown that the Greeks and Romans were also in the habit of employing massage. Among a thousand equally pertinent examples I may cite this observation of Hippocrates: 'At Elis the wife of a gardener was seized with a continuous fever; she took evacuant remedies without any relief. In the belly, below the umbilicus, there was a hard swelling protruding above the level of the surrounding parts; this swelling caused violent pain. The attendants were set to rubbing and kneading this tumor with all their might, their hands being well smeared with oil. Soon blood in abundance was passed by stool. The patient experienced marked relief, and got well. Here, you see, was a case of intestinal obstruction, and massage overcame the obstruction and effected a cure. Oribasue, also, in his compilation, indicates all the practices of massage, giving the minutest details.'

"The Renaissance, it must be admitted, added little to what the ancients knew respecting massage. I ought, however, to mention a curious tract by Paullini, which appeared about the end of the seventeenth century, and was entitled 'Flagellum Salutis.'

"It is only within a few years that massage has obtained the right of domain in medicine. This movement of scientific renovation took place almost simultaneously in France, in Holland and in Germany.

"In France, in 1837, Martin represented to the Medical Society of Lyons the marvellous results which he had obtained from massage in the treatment of lame back and lumbago. Lebatard and El-laume in 1860, and Rizet in 1862, showed the advantage which may be obtained from massage in sprains, but we must come down to the thesis of Estradere in 1863 before we find a comprehensive treatise on the effect of massage. Works on this subject have since multiplied, and I cannot even give you a full list of their titles, but I cannot refrain from indicating the great value which ascribe to the brilliant work of Estradere, who was the first to put in clear light the physiological effects of massage, and the therapeutic benefits to be derived therefrom. Nevertheless, it is not France alone that derived all the benefits of this work. Holland has reaped advantages from it under the influence of Mezger and his pupils, and we see even now patients flocking from all parts of Europe to Mezger's clinic, to essay the effects of massage under the direction of that celebrated masseur.

Mezger has written but little. The only treatise of his which we possess (and it is of very modest dimensions) was published in 1868 at Amsterdam. He says in this work that it is his intention to devote himself particularly to those special applications of gymnastics which are called frictions, or, better still, massage. He adds that in 1853 he began at Amsterdam the treatment of sprains by this means: that little by little he improved his system, and that since

1861 he has occupied himself exclusively with massage. Mezger has gathered around him numerous pupils.

"In Sweden it is under the influence of Bergmann, of Helledag, and especially of Amstrom, that the method of Mezger has spread. In Russia Berglind has been the pioneer in this direction. Lastly, in France, we owe to Norstrom, of Stockholm, a complete exposition of Mezger's methd.

"In Germany it is under the influence of Rosbach, of Busch, and particularly of Schreiber and of Reibmayr, that massage has taken a truly scientific development. The work of Schreiber has been translated into French, and still more recently into English; Reibmayr's has been translated into French and annotated by one of my pupils who has made a specialty of massage."

There is hardly a nation or people who have not practised some form of massage for the cure of disease or for the increase of strength. The ancient Hindoos, Chaldeans, Persians and Chinese, as well as the Greeks and Romans, used massage, while the patting (no-go-tah) of the American Indian, the "amha" of the Japanese, and the "lomi-lomi" of the South Sea Islanders are well known.

The structures most directly affected by massage are the following:

The skin (see figure 9), with its connective tissue, its sweat and sebaceous glands and its hair bulbs. The skin and adjoining tisues also contain an infinite number of small arteries, veins, capillaries and

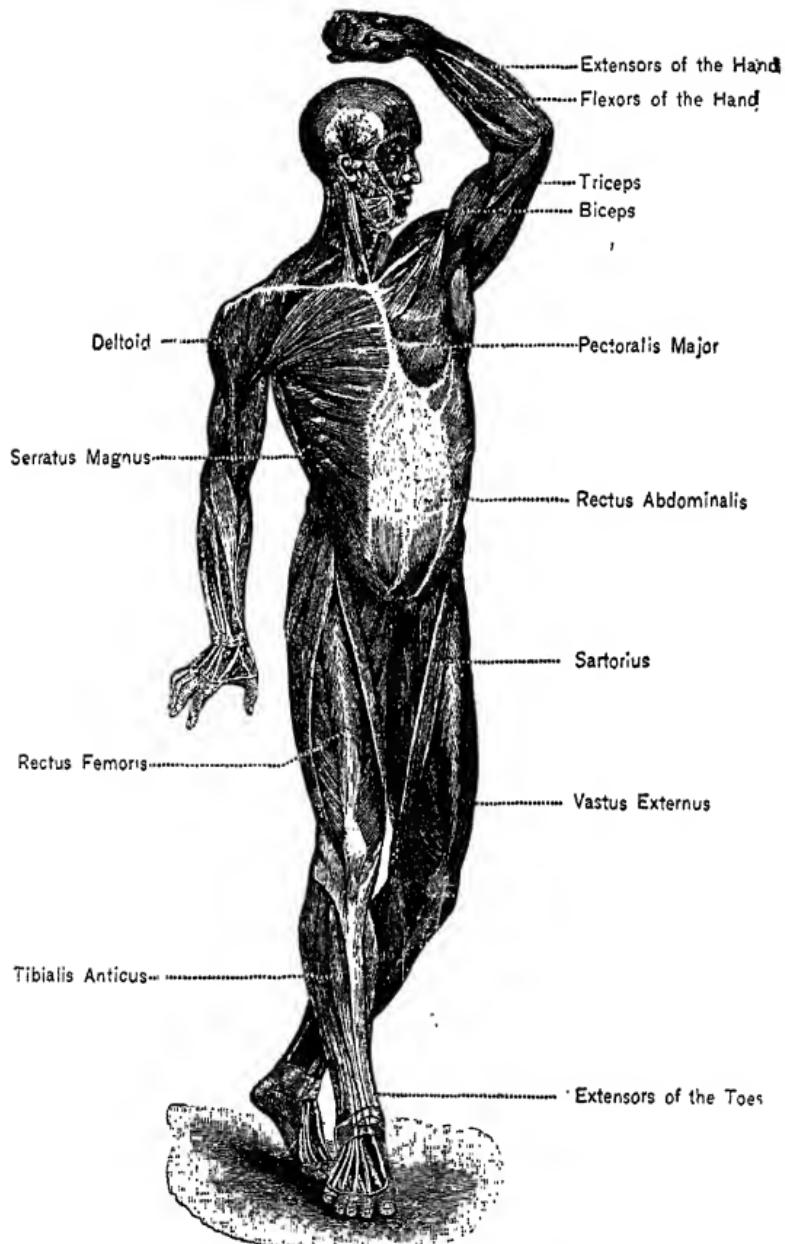
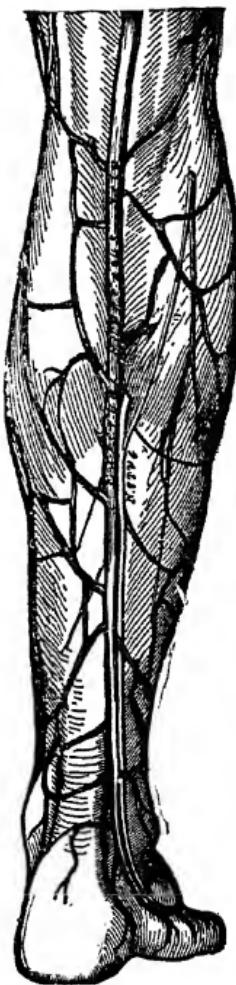


Fig. 9. The superficial muscles of the body



SHOWING LARGE VEINS  
OF THE ARM.

Fig. 10.  
(These figures do not show the valves of the veins, which open toward the body.)



SHOWING LARGE VEINS  
OF THE LEG.

Fig. 11.

nerves, all of which are powerfully affected by manipulation.

The muscles, which make up the bulk of the fleshy portion of the body, may be greatly enlarged and invigorated by massage.

The veins, the circulation of which may be accelerated or impeded according to the direction in which the strokes are made.

The arteries, which, when veins are emptied by pressure along their course, must convey to that point a larger supply of oxygenating blood.

The lymphatics, which usually accompany the larger veins, are affected in a manner analogous to the veins themselves.

The large nerve trunks, as well as the small terminal nerves and ganglia near the surface, are powerfully affected by manipulation of certain areas.

All the vital organs contained within the trunk, heart, lungs, stomach, pancreas, spleen, liver, kidneys and intestines, are more or less directly affected by skilful manipulation.

The bones, joints and ligaments are subject to the same process of nutrition and cell deterioration as the surrounding tissues, and are, to a less degree, affected by massage.

# Manual and Mechanical Massage

## CHAPTER II.

Massage may be applied either by means of the hand, manual massage, or by various mechanical contrivances. Massage applied by means of apparatus is called mechanical massage.



Fig. 12—KNEADING.

Manual massage, in which the hands of the operator are employed, is, in reality, a difficult art, and

requires for its mastery years of study and practice. The operations of manual massage comprise, according to one authority, four movements—effleurage (stroking), petrassage (kneading) and tapotement (percussion). A better and more comprehensive arrangement seems to be that followed by Dr. Kellogg, in his *Art of Message*, which is:—First,

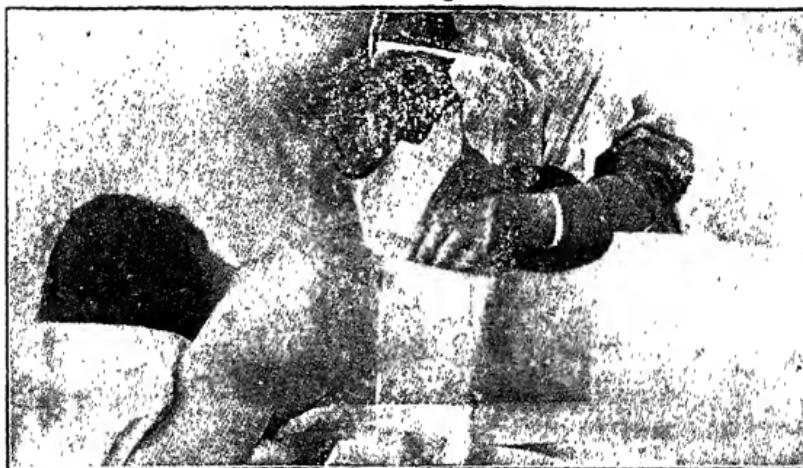


Fig. 13. TAPPING.

touch; second, stroking; third, friction; fourth, kneading; fifth, vibration; sixth, percussion; seventh, joint movements. The accompanying illustrations, Figs. 12, 13 and 14, are from Dr. Kellogg's valuable work.

Touch may be light or heavy. The effects follow—

\**The Art of Massage; Its Physical Effects and Therapeutic Application.* By J. H. Kellogg, M. D. Price, \$2.25.

ing touch depend upon the influence on the patient's consciousness, upon the slight elevation of temperature, upon a closure of the various vessels, due to pressure, and possibly upon some electrical

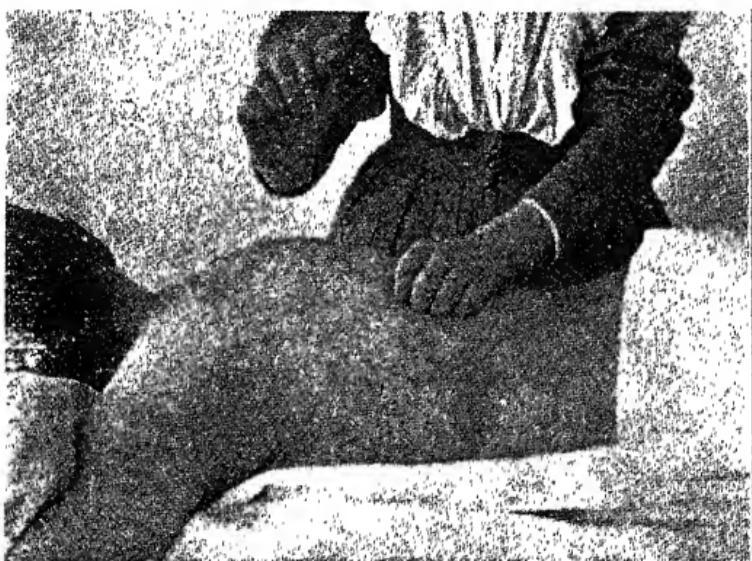


Fig 14—BEATING.

interchange. Should the pressure be made along the course of some of the larger nerve trunks or near some sensitive organ, special effects will be produced. In stroking, the tips of two or more of the fingers, or even of the entire palmar surface of the hand, are gently drawn over the skin of the patient. In friction the action is the same, save that a greater degree of pressure is applied. Kneading (petrassage) is the most important of the manual opera-

tions. Kneading is applied through a variety of movements, the most usual of which are superficial kneading, or "fulling," rolling, wringing, palmar kneading, fist kneading and digital kneading, in all

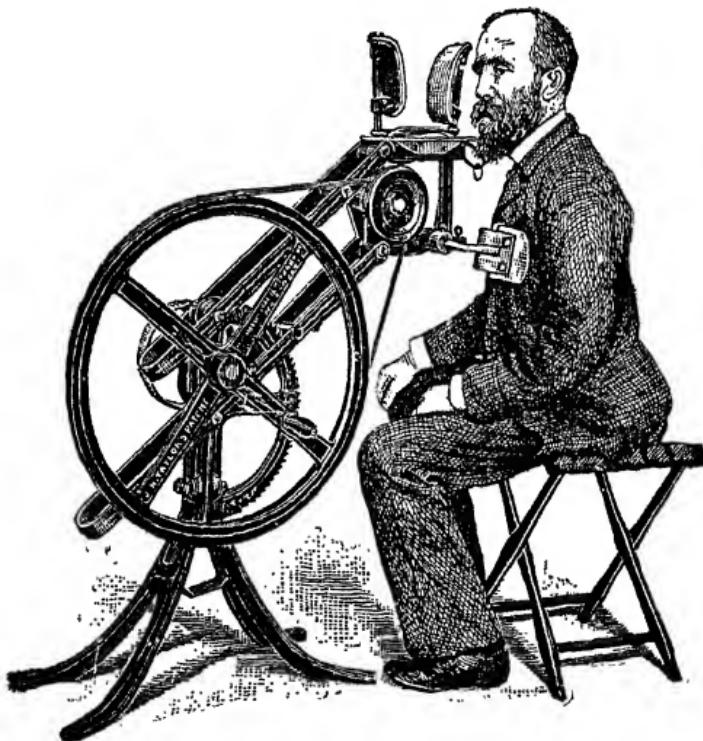


Fig. 15—MANIPULATION OF BREAST.

of which the tissues of the subject are manipulated by grasping them in the hands or by compressing them between the hands and the subjacent tissues. Vibration is simply a shaking of the parts to be treated.

Percussion consists of blows given in various

ways and with varying degrees of force. In administering tapotement, or percussion, the blows may be given with the finger tips (tapping), with the palm of the hand (spatting), with the entire palmar surface of the hand (clapping), with the edge of the open hand (hacking), or with palmar surface of the half closed fist (beating).



Fig. 16—MANIPULATION OF BACK.

Joint movements, as the name implies, consists of various stretchings, extensions, flexions and twistings of the joints. They may be either resisted or passive.

Without going into further detail regarding the methods of therapeutic application of manual massage, it may be stated that, in all cases, except those in which the special services of a skilled masseur are indicated, the various appliances used in mechanical



Fig. 17—MASSAGING THE ARM.

massage are preferable because of effectiveness, convenience and cheapness.

Mechanical massage is administered by means of an immense variety of apparatus, some simple, oth-

ers most complex. Zander, of Stockholm; Dr. J. H. Kellogg, of Battle Creek, and Dr. George H. Taylor and Dr. G. H. Patchen, of New York, have devised ingenious mechanisms by which motions of various kinds can be transmitted to the several parts and organs of the body. A few of these machines, in use in the Improved Movement Cure Institute, of this city, are shown in the accompanying illustrations. These devices are of the utmost value in dealing with a wide range of disorders. The principal objections to their use are complexity and expensiveness. Machines of this kind are found, as a rule, only in institutions. The institutions are usually located in the large cities, so that only a minority of people can avail themselves of this form of massage treatment.

Besides the more complex appliances for the transmission of motion there are a number of simple devices which, on the whole, are of much greater real practical value. Among these may be mentioned the various forms of muscle beaters and rollers.

The first beater was invented by Klemm, a German masseur, about twenty years ago. The early muscle beaters were rather crude, heavy affairs, hard and inelastic. Modern instruments, however, are so constructed as to obviate all these disadvantages. Muscle beating corresponds to tapotement, or pounding by the fingers and hands. It is used ordinarily in self-treatment as a supplement to

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massage rolling. To most people the beater is not as agreeable an instrument as the massage roller, which will be hereafter described, but is rather more stimulating to the skin than the latter. It is also very useful in self-massage in treating that part of the back between the shoulders, a part hard to reach with the roller. It is also very useful in treating the soles of the feet, to stimulate the circulation there.

A treatment by the Fig 18—MUSCLE BEATING APPLIED TO massage roller may, with great advantage, be ended by a short, rapid and stimulating use of the beater.



Fig. 20—Sectional View of Pneumatic Beater.

The Nos. 1 and 2—pneumatic beaters—are new. They are probably superior to any heretofore made.

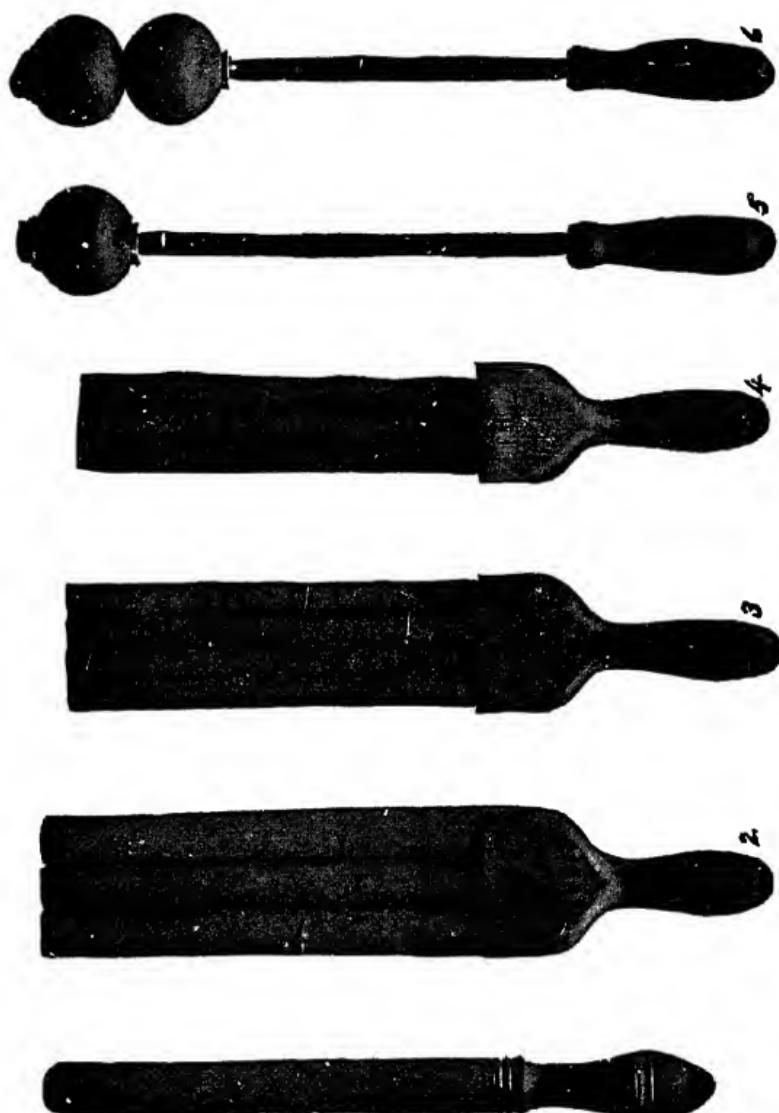


Fig. 20—MUSCLE BEATERS

They consist of a corrugated air-tight rubber tube, one inch in diameter and ten inches long, secured on a handle which fits into the tube. Extending from the handle inside the tube is a flexible spring, considerably smaller in diameter than the inside of the tube, and covered with soft felt or elastic tubing. With the single instrument each stroke is doubled; and with three of these tubes on one handle and used edgewise, a series or wave of strokes is produced, approaching the "vibration" of massage. The contained air, the size of the tube and the elasticity of the rubber all combine to make this beater soft and agreeable as well as efficient in use.

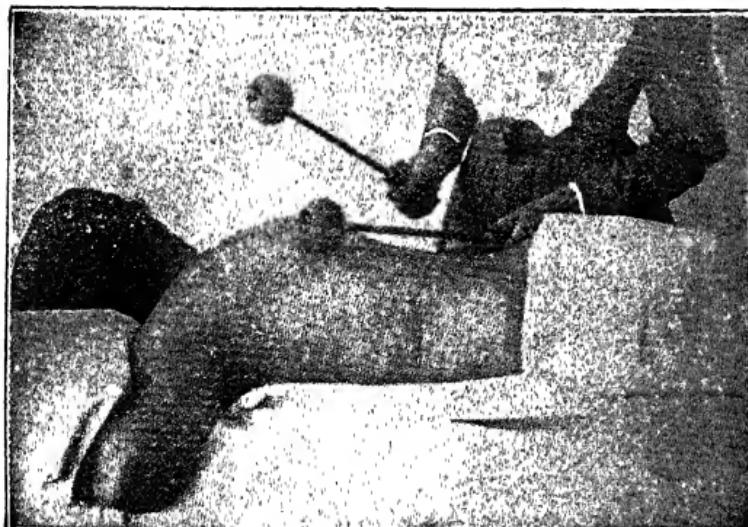
Nos. 3 and 4 beaters are made of light steel springs fastened to a handle and covered with elastic tubing five-eighths of an inch in diameter. These have been found to be too hard and unyielding, and are not now manufactured, being superseded by the new pneumatic beaters and the ball beaters.

Another valuable form of muscle beater is that devised and introduced by Douglas Graham, an American. This consists of one or more hollow rubber balls attached to a flexible handle.

The Nos. 5 and 6 beaters consist of thin, hollow rubber balls, about two and one-quarter inches in diameter, and secured upon a flexible rod. The two ball beater is adapted, when used by an attendant, for beating upon the spine. Length, 17 inches.

In his "Treatise on Massage" Dr. Graham gives the following directions for using the ball beaters.—

"Very well suited for percussion are india rubber balls secured to steel, whalebone or other elastic handles. With these one gets the spring of the handles together with the rebound of the balls, and thus rapidity of motion with varying intensity may be gained if only the operator knows how to let his



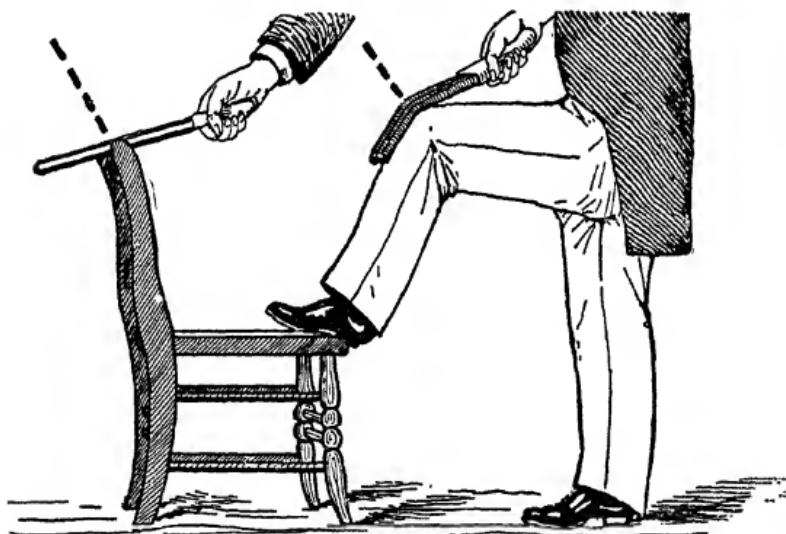
Method of Using Ball Beaters.\*

Fig. 21.

wrists play freely. The number of blows may vary from two hundred and fifty to six hundred per minute, with both hands. The blows should be smart, quick and springy, not solid and hard, and they

\*This illustration is from "The Art of Massage, its Physiological Effects and Therapeutic Application," by J. H. Kellogg, M. D. Octavo, 281 pages, bound in cloth, price \$2.25.

should be transversely to the course of the muscles, except in the case of the back, which may not only be percussed with the hands at right angles to it while the patient is lying, but still more effectually when the patient is standing bent forward so as to put the dorsal muscles on the stretch. The operator's hands are then most easily parallel to the spine.



Beaters of the older style are decidedly unyielding; whereas the Pneumatic Beaters conform to the most irregular surface.

Fig. 22.

and can rapidly strike the muscles both sides of it, causing a vibratory effect which is communicated to the nerves as they emerge from the intervertebral space, and the effect is usually perceived in a peculiar and agreeable thrill."

## **Massage Rollers and Their Application.**

### **CHAPTER III.**

Of the many mechanical devices for the application of massage there is not one that combines the qualities of convenience, effectiveness and cheapness so fully as the massage roller. Nor are these the only merits of these ingenious instruments. The strongest recommendation of the massage rollers is that they are peculiarly adapted to self massage. This adds immensely to the convenience of using them, and at the same time the user has the advantage of both massage and exercise.

The best form of massage roller is the one devised by Dr. Forest, which consists of a rod, more or less flexible, upon which are mounted a number of wooden wheels about one and a half inches in diameter. Around each wheel is a rim, or buffer, of specially prepared soft rubber. These rims are made of pure gum and are elastic, but very firm. The rod bearing the wheels is set in a substantial handle of wood (see illustrations). Another important feature is that the wheels turn separately and independently of each other, each in accordance with the resistance that it meets. There is thus no drawing or pulling of the flesh or skin, as would be the case if it were all one solid wheel.

The method of application consists in grasping the handles with one or both hands, and passing the roller back and forth over the part which is to be treated.

In using the massage roller no lubricant is needed for the skin. It is not necessary even to expose the skin, as the roller will act as beneficially when applied to tissues thinly covered as for instance, over the underclothing. In this manner pressure may be applied to the full strength of the operator without inflicting pain or injury to the skin through undue friction. Indeed, one of the great advantages of this form of massage is that the force is not expended on the skin, but is carried at once to the deeper tissues, muscles, blood-vessels and nerves.

The avoidance of skin friction is a great saving of the strength of the operator, whether working upon himself or upon another. A delicate person can work with the roller for an hour, changing occasionally from hand to hand, with but little fatigue; while, without the roller, fifteen to twenty minutes' rapid and vigorous massage will be a fatiguing effort to the operator.

Then, too, the muscle-roller is used without any exposure of the patient, as it produces as much effect when applied over a sheet, or the patient's cotton or woollen undergarments, as when used on the bare skin. Owing to the elasticity of the rubber, the running of the wheels over bony parts of the body causes no pain, and the instrument can be

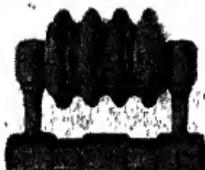
# DR. FOREST'S MASSAGE ROLLERS



Nº 5



Nº 8



Nº 2



Nº 1



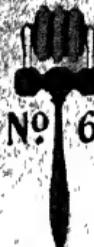
Nº 7



Nº 4



Nº 3



Nº 6

PATENTED.

used over joints, on the neck, head or face, not only without discomfort, but with positive pleasure.

With the best instruments there is an interval or space between the rubber buffers or tires of the adjoining wheels. This space allows the tissues to be crowded up between the buffers, and thus gives a slight lateral or pinching compression, as well as a direct perpendicular pressure, much as though the flesh had been gently squeezed between the fingers.

The massage rollers in ordinary use differ somewhat in size and details of construction, but are much alike in general design. There are also massage roller machines, made with wooden wheels. The lack of elasticity in the wheels of these, however, is apt to injure the tissues; and for this reason their use is not advisable.

Massage rollers of the best pattern are made in sizes and styles adapted to the various parts of the body to be treated. One pattern is designed for use upon the abdomen and hips (see No. 1); another upon the bust (see No. 4). Then there is a special roller designed for use upon the face and neck (see No. 6). Another form of massage roller consists of a row of twelve of the rubber tired wheels, mounted upon a straight rod and provided with handles at the ends (see No. 5). This roller is especially adapted for use upon the abdomen and hips. In obesity, particularly in those troublesome cases where the deposit of adipose is localized upon the abdomen, back or hips, the vigorous and

methodical use of this instrument, even without special diet or general muscular exercise, will produce surprising results.

There are few cases where massage is indicated in which the self-applied massage with the roller may not be used in place of other mechanical or manual treatment. There are, however, certain conditions in which the roller has proven itself particularly valuable. Among these may be mentioned obesity, alopecia (baldness), atrophy (emaciation), constipation, indigestion, torpidity of the liver and coldness of the extremities. In conjunction with other treatment, the massage roller has a field of usefulness that is practically unlimited. As a matter of fact, there are very few disordered conditions of the system in which the massage roller will not, by equalizing the circulation and stimulating the vital functions, be a valuable factor in the treatment.

In disordered states of the system it is invariably found there is some irregularity in the condition of the circulation. Sometimes the blood stagnates and accumulates in one organ or part of the body, leaving other parts unsupplied. Sometimes, through weakness of the heart stroke or through lack of tone in the arterial walls, the blood is not propelled with sufficient force to reach the extremities, which become cold. In such cases, particularly where the sufferer is too weak to exercise, the gentle use of the massage roller, self-applied where possible, is most beneficial in hurrying

Nº1

THE  
MASSAGE VIBRATOR

Nº2

PAT. APPLIED FOR.

Fig. 24. MASSAGE VIBRATOR.



Fig. 25. USING MASSAGE VIBRATOR.

forward the lagging blood stream, in drawing the blood from the congested areas, and in determining the blood toward those parts of the body from which it had flowed.

To the layman it may seem illogical to recommend exactly the same treatment for obesity, on the one hand, and for atrophy or emaciation, on the other. But the paradox is only apparent. The effect of pressure with the massage roller is to break down the adipose tissue, which is soft and easily converted by pressure into matter for excretion. The same treatment applied to muscular tissue stimulates circulation, as explained in the introduction to the present work. Fresh blood is thus brought to the tissues, and their nutrition is increased.

#### THE MASSAGE VIBRATOR.

One of the most recent devices for the application of mechanical massage is an instrument known as the massage vibrator. This consists of a number of revolving wooden balls, mounted upon a steel or brass chain, provided with handles at each end. This instrument is used in a variety of ways, and can be effectively applied to almost any part of the body. It is generally used by grasping one of the handles in each hand and drawing the chain back and forth over the area which it is desired to reach. A third handle is supplied, and by using this the chain may be doubled, thus gaining increased surface. Another method is to attach one handle to

a hook fastened to the wall, door post or some other point.

These instruments are capable of a surprising variety of applications, and are especially useful in that they can be conveniently applied to just the places where it is impossible or awkward to manage with the hand or the roller. The massage vibrator should be used in connection with the massage rollers. The massage vibrator and the massage roller possess one great advantage in common, and that is that both, when self-applied, secure not only the massage, but the exercise necessary to its application.

## Special Exercises.

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### CHAPTER IV.

The value of exercise in the treatment of various diseases cannot be overestimated. It is one of the most important remedial measures at our command.

"The body is a factory of poisons," as a great pathologist has said. In a general way disease may be said to be merely the effort of the organism to expel these poisons. This expulsion is effected through the activity of the organs of depuration. Now, when it is understood that in bodily quietude these organs act but feebly, and that in vigorous bodily activity their operations are very greatly accelerated, the curative value of exercise will be understood.

Probably no other remedial measure has been so grossly misunderstood and misapplied as exercise. Unfortunately, the average physician feels it beneath his dignity to inform himself on this most important subject, and the matter of physical training has thus fallen into the hands of those who, owing to a lack of general and medical erudition, are usually quite incapable of adopting and prescribing a system of exercise appropriate to the various ills to which flesh is heir.

It may be plainly stated that the various systems of exercise which have for their object the building up of large muscles or the increase of strength do



Fig. 26.



Fig. 27.

more harm than good. Muscular strength does not mean constitutional strength. On the other hand big muscles often mean a hypertrophied heart, impoverished organs and a vital resistance so lowered as to make the athlete a notoriously "bad risk" from a life insurance standpoint.

Exercises should be so devised as to localize the effort where it will stimulate, not the muscles of the arms and legs, but the vital organs, heart, lungs, stomach, liver and skin—so that it will increase the functional activity of the organs that convert food into blood, that send the blood circling through the tissues, that inject the oxygen and expel the poisonous waste.

The exercises given in this chapter are the result of many years of study and experiment in the effort to formulate a complete system of therapeutic or curative exercise. They are founded upon a broad knowledge of physiology and anatomy, and they may be relied upon not to develop muscular tissue at the expense of constitutional strength and vital resistance.

These exercises are adapted to young and old, to robust and to feeble. In each case the force applied to the movement may be adapted to the strength of the patient. The same remark applies to the time devoted to the exercises. This will depend entirely upon the patient. I consider that the strongest recommendation of these exercises is their adaptability to "all sorts and conditions of men" and women.



Fig. 28.



Fig. 29.



Fig. 30.



Fig. 31.

I may remark that it is always advisable to commence with the stretching exercises and end with the relaxing movements; also that when tired or nervous or excited, the relaxing exercises may be "taken alone." As a method of training in ease, grace and repose, both physical and mental, these last named exercises are of the utmost value.

The special application of these exercises to various disorders is mentioned in the chapters dealing with each.

#### EXERCISE NO. 1.

Stand erect, feet together, weight thrown forward. Now slowly raise the hands over the head, palms forward. Take full breath, and, holding same, stretch firmly upward, as though trying to reach the ceiling. (See Fig 26.)

#### EXERCISE NO.

Stand erect, feet together, weight forward. Now take full breath, slowly extend the hands out at the sides and stretch, as though trying to push the hands further from each other.

#### EXERCISE NO. 3.

Stand with feet together. Now raise arms upward, clasp hands together, take breath and stretch firmly upward, swaying the body gently back and forth and from side to side. (See Fig. 27.)

#### EXERCISE NO. 4.

Stand erect, feet together, weight forward. Now slowly raise right arm and stretch firmly upward toward the ceiling, inclining body slightly toward



Fig. 32.

the left. Return to position. Raise left arm and stretch in the same manner.

EXERCISE NO. 5.

Stand with feet together, raise the hands straight above the head. Then gently bend the body forward until head and hands are pointing straight forward and a little downward. Now take full breath and stretch vigorously, as though trying to reach some object just beyond the reach. (See Fig. 28.)

EXERCISE NO. 6.

Stand erect, feet together, weight forward, arms extended at sides, palms upward. Now slowly pass hands downward and backward as far as possible, bringing them close to the body, then up in front, over the head, back as far as possible, down, forward, up and so on, sweeping the arms around in a wide circle. (Fig. 29 shows arms moving downward.)

EXERCISE NO. 7.

Stand erect, feet together. Now, raise hands upward in front of the body until directly over the head, palms forward. Then bend the body forward, without bending the knees, and sweep hands forward and downward toward the floor. (See Fig. 30.)

EXERCISE NO. 8.

Stand erect, arms hanging at sides. Now gently turn the face over the right shoulder and allow the body to follow slowly, pivoting the entire body to the right as far as possible. Then slowly return to



Fig. 33.

position, and, without pausing, turn the body, as on a pivot, around to the left, until the face is looking directly behind you. Do all this very slowly and gently, trying each time to reach farther and farther around. This is one of the most valuable exercises I know. Properly practised it brings into activity all the most important muscles of the body. (See Fig. 31.)

EXERCISE NO. 9.

Stand erect, feet together, weight forward, chest lifted, head back, arms hanging easily at the side. Now inhale through the nose, slowly and gently, at the same time raising the arms so that, when the lungs are fully inflated, the arms shall be at their greatest height. Then, without holding the breath, gently exhale, allowing the arms to sink, and timing their movement so that when the exhalation is complete, the arms shall be hanging easily at the sides. (Fig. 32 shows arms lifted and chest filled with inhaled air.)

EXERCISE NO. 10.

Stand erect, weight forward, hands at the sides of the waist, palms downward. Now, inhale very gently, and if muscular ease has been preserved you will note that the first perceptible movement is that the waist gently expands, separating the hands. When this is plainly felt, exhale at once and repeat. (See Fig. 33.)

EXERCISE NO. 11.

Stand erect, hands upon abdomen. Now slowly and gently incline body forward, at the same time



Fig. 34.



Fig. 35.



Fig. 30.

inhaling breath, and note that as you bend forward the abdomen is distended by the inhaled air. Then, without holding breath, rise to the erect position, at the same time gently exhaling breath. (See Fig. 34.)

EXERCISE NO. 12.

Stand erect, hands upon abdomen. Take full breath and hold the same to the sound of "K." Now, still holding the breath, force the air into the upper part of the chest by contracting the abdominal muscles. Then, after holding it there for a moment, force it down into the abdominal cavity. Repeat once or twice and then exhale.

This exercise is one of the most valuable I know, both as a general tonic and for its special value in constipation.

EXERCISE NO. 13.

Stand erect, arms hanging at side, weight forward. Now, allow head to fall forward upon the chest, then gently bend forward toward the floor, head and hands hanging limply downward as far as possible, without bending the knees. (See Fig. 30.)

EXERCISE NO. 14.

Stand erect, feet slightly apart. Now, allow the arms to swing directly back and forth, gently. Gradually increase the movement by bending the knees as the arms go forward until they rise as high as the shoulders. The one point in this exercise is to make the swing as large and free as possible



Fig. 37.

with the least outlay of muscular exertion. (See Fig. 35.)

EXERCISE NO. 15.

Stand easily, feet slightly apart, arms and head hanging limply. Now gently turn the body around as on a pivot, first to the right, then to the left, arms swinging loosely as they will. (See Fig. 36.)

The exact manner of performing this movement is unimportant, so long as the muscular exertion is reduced to a minimum. In other words, it does not in the least matter how it is done, so that it is done most easily.

EXERCISE NO. 16.

Same as the preceding, save that the weight is shifted from one foot to the other as the body is pivoted from side to side. (See Fig. 36.)

EXERCISE NO. 17.

Lie upon the back on the floor. Relax all the muscles and take a few deep, gentle breaths. Now very gently raise the right leg, pass it over the left, and so, very slowly and gently, roll the body over on the left side, then allow the body to roll further over upon its front. (See Fig. 37.) After a few moments roll gently back to original position, using only just enough force to turn the body over, and pausing occasionally to make sure that you are not making too much effort.

## **Building Tissue and Care of the Face.**

### **CHAPTER V.**

In a previous chapter it was explained that the conditions of perfect nutrition are proper food, full breathing and a certain amount of bodily activity. It is needless to say that these conditions are seldom met, and that, therefore, it is unusual to find a person whose tissues are thoroughly well nourished.

#### **THE DIET IN SUB-NUTRITION.**

In the treatment of this condition the feeding is an important consideration. Errors in diet are, perhaps, among the most common causes of human weakness and disease. The food should be plain, simple and not excessive in quantity.

Matter taken as food may be divided into four classes—proteids, hydro-carbons (starches and sugars), fats and salts. In order that the body may be properly nourished, it must be provided with food containing all these elements.

"Bread and milk, pork and beans, eggs on toast, spaghetti with cheese, chicken with rice, oatmeal with cream, meat and potatoes—these and many other homely food combinations keep their place in domestic favor because they consist of proteid and starchy foods in something like the right pro-

portion. Modern dietetic science would enable us to suggest many improvements in these dishes; but, while some of them are faulty, viewed from a strict scientific standpoint, they are by all means preferable to the elaborate and pretentious dishes of the prize cook, whose one talent is to make things taste good. The plain people of all countries have learned from hard experience certain dietetic usages which their social superiors, presumably wiser, would often do well to follow."\*

The principal proteid foods are meat, eggs, cream, milk, cheese, the legumes (peas, beans, lentils, vetches) and all the nuts. Among the hydro-carbon or starchy foods those in common use are cereals and grains, potatoes and other vegetables; also the sugars. Chestnuts contain a large proportion of starch, together with the proteid, fatty and saline matters, and are thus a most valuable article of food.

The fats are contained in both vegetable and animal foods. Meat, cream, milk and nuts are rich in fatty matters. Eggs and cheese also contain fats.

The salts are contained in nearly all of the articles commonly used as food. It is a demonstrable fact, however, that these saline elements, when submitted to the usual process of cooking, are so chemically altered as to be unassimilable. It seems to have been proven that only raw foods contain

\*From "Food Value of Meat," by W. R. C. Latson, M. D. Price, 25c. Published by the Health-Culture Company.

the saline elements in a state to be assimilated by the system.

In selecting a dietary the following requirements should be considered. First, the quantity should not be excessive, nor should there be too great variety. Second, there should be in the dietary a certain quantity of each of the four food elements—proteid, starchy, fatty and saline matters. Third, the saline matters are found in an assimilable condition only in raw foods.

Saline starvation is a very common condition. This does not imply lack of common salt, but of those important saline matters above referred to, which are found only in the raw foods.

People whose dietary is deficient in salts may appear and may feel fairly well, but the pallor of lips, gums and ears, the emaciation or the obesity (both are symptoms of faulty nutrition), the lack of energy, the habitual sense of languor, the shortness of breath—some or all of these symptoms show that these patients are starving—starving for the indispensable saline matters which have been altered by the cooking of the food as to be unassimilable by the organism.

A point of primary importance, then, in the rebuilding of wasted tissues anywhere in the body is to arrange a dietary containing a large proportion of raw foods—fruits, nuts and fresh green vegetables which can be eaten raw.

A good dietary for general application is the following:—

## BREAKFAST.

Menu No. 1.

Cereal, with stewed fruit or fruit juice.

Fresh fruit.

Bread.

Menu No. 2.

Cereal, with milk or cream.

Bread (and butter).

Menu No. 3.

Eggs.

Baked Potatoes.

Bread (and butter).

## DINNER.

Menu No. 1.

Green peas.

Boiled rice.

Salad.

Stewed fruit.

Bread (and butter).

Menu No. 2.

String beans.

Baked potato.

Salad.

Fresh fruit.

Bread (and butter).

Menu No. 3.

Bean soup.

Cereal.

Salad.

Fruit (fresh or cooked).

Bread (and butter).

Luncheon or supper similar to breakfast.

The dietary should be arranged in accordance with the general principles herein laid down. It is important, however, not to allow the matter to become a cause of anxiety or constant attention. No diet will be properly assimilated when it is made a cause of worry.

#### BREATHING AND NUTRITION.

Another important factor in the treatment of wasted tissues is the breathing. In spite of a proper dietary the tissues will suffer unless they are fully supplied with oxygen. The best means of obtaining the necessary oxygen is free exercise out of doors. Where this is impracticable, however, the faithful practice of breathing exercises and lung gymnastics will be found most beneficial. Those desiring further information upon this matter are referred to the chapters entitled "Mechanical Aids to Normal Breathing," and to "Breathing and Beauty" in "Womanly Beauty of Form and Feature."

Roller massage is of the greatest possible value in rebuilding wasted tissue, and the methodical and intelligent use of the roller, supplemented by proper diet and deep breathing, will accomplish marvels in restoring vivid coloring and lost contours.

There is no place in which this atrophy or wasting of the tissues is so noticeable and so unsightly as in the face. "The face is a mass of muscular fibres covered with the skin. The dissection of these

muscular fibres is difficult and unsatisfactory, for, instead of being separate, like muscles in other parts of the body, they are closely interwoven in all directions, sending fibres to the bony framework. Any separation of the muscles of the face is apt to be misleading. Into this mass of muscular tissues are inserted the nerves, which cause move-



Fig. 39.

Features uplifted in smiling.



Fig. 40.

Features depicted in grief and anger.

ment."\* These facial muscles are constantly active, producing what we call expression, and, when there is a wasting of the tissues for lack of proper nourishment, the same activity of the facial muscles forms lines and wrinkles.

\*From chapter entitled "The Influence of Thought upon Beauty," by W. R. C. Latson, M. D., in "Womanly Beauty of Form and Feature," price \$1.00; published by The Health-Culture Company.

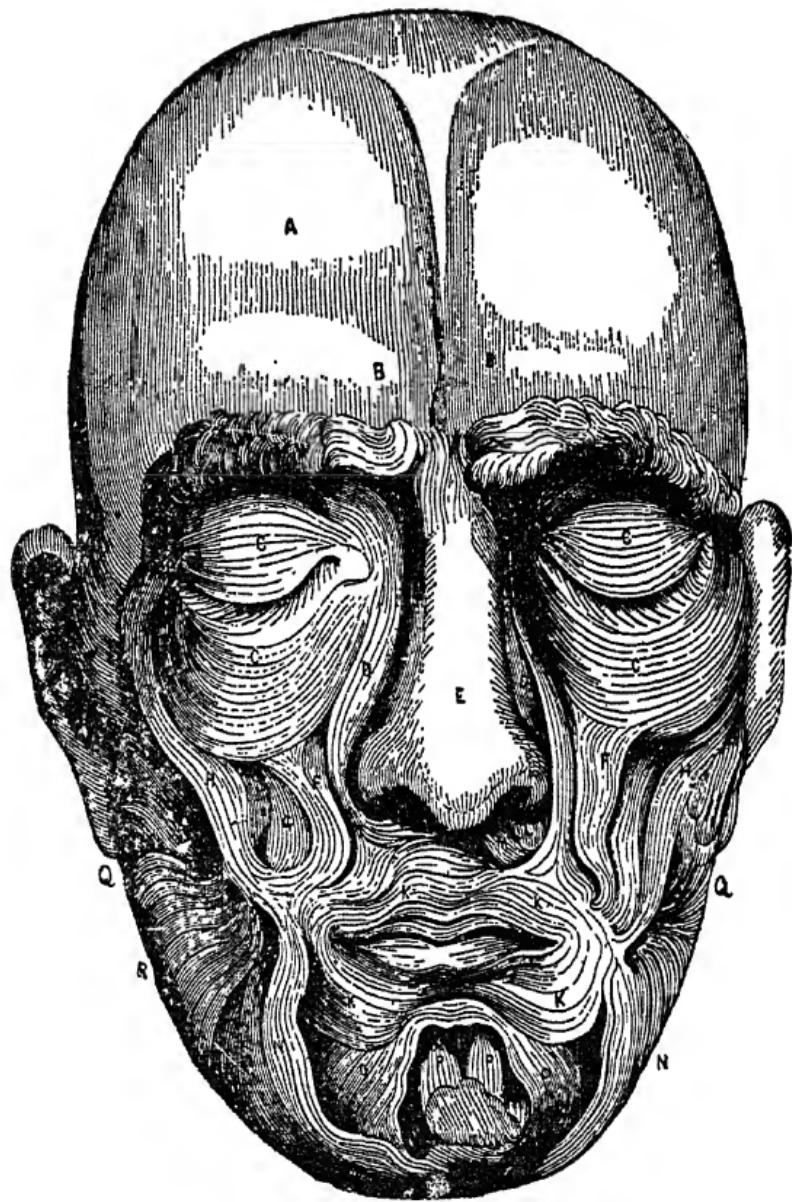


Fig. 38. MUSCLES OF THE FACE.

Except as a result of long continued chronic disease or of yielding to the influence of pernicious mental states—fear, anxiety, envy and so on—the face retains its fresh coloring and unbroken contours until a very advanced age. There are few women who could not, by proper attention to diet, exercise, breathing and roller massage, take many years off their faces.



Fig. 41.  
Normal Face.



Fig. 42.  
Smiling face.



Fig. 43.  
Depression.

The lines most frequently found on the face are the following:—

1. Transverse lines across the forehead. These lines are produced through the habit of allowing anxious thought to dominate the mind.



Fig. 44. ROLLER MASSAGE FOR THE FACE.

There is a small roller made specially for facial massage, which, besides being perfectly adapted to that purpose, is a thing of beauty and an ornament to the dressing table. The roller should be taken in the right hand and passed up and down across the wrinkles, beginning at the centre of the forehead and working around toward the right temple. Then change to left hand and apply to the left side of the forehead. Follow this by gentle manipulation with the fingers, using some good cold cream or "skin food" and making the strokes upward toward the scalp.

2. Less common but far more unsightly and repellent are the vertical lines between the eyebrows. This is a line which usually signifies concentration of mental energies, lack of faith and of repose. It is also an inevitable result of long continued habitual yielding to sudden fits of anger. Occasionally it is the sign that the eyes are not normally focussed. For this condition use roller in either hand alternately, rolling horizontally across the wrinkles and working slowly upward toward the hair. Follow this by placing the finger tips of the first and second fingers of either hand directly upon the wrinkles, using the "skin food" and making the strokes upward toward the hair.

3. Radiating lines (crow's feet) at the corners of the eyes. These lines are caused by any emotion that produces lifting of the cheek. They are called laughter lines, but may also be the result of defective vision or of unrestrained grief. The most marked

cases I have ever observed have been in seafaring men, whose life is a continuation of exposure, anxiety and hard labor.

In order to eradicate these lines careful and persistent treatment is necessary. Use the small ebony roller, above described, passing it gently first up and down, then from side to side, and working from the cheek upward and forward toward the corner of the eye. Finger movements are very useful here. Use the tips of the first and second fingers, passing them with a circular motion along the course of each line from its termination on the cheek toward the corner of the eye. Wherever possible use the skin food in making these manipulations.

For further particulars regarding the roller massage treatment for the face, those interested are referred to chapters on facial massage in "Womanly Beauty."

## **Developing Neck and Bust.**

### **CHAPTER VI.**

Next to the face the region which most often shows signs of tissue wasting is the neck. This is due partly to the fact that the usual carriage of the head upon the neck is such as to cause severe and continuous strain of the neck muscles. This undue exertion causes a wear and tear upon the tissues of the neck which results in a wasting away, even although other areas of the body may be fairly well nourished.

Another common cause of wasting of the tissues of the neck among women is the harmful fashion of tight, high neckwear. It must not be forgotten that the body, which seems to a superficial observer so solid, is really a soft, yielding mass of constantly changing cells. Even a slight pressure upon any part of the body, if continuous, causes a yielding or shrinkage of that part. For instance, one of the most important causes of faulty carriage of the body is the pressure of clothing upon the back of the neck and the shoulders.

#### **RESULT OF "TAILOR MADE" STYLE.**

The present style of dressing the neck with high, tight, unyielding bands of crinoline or other similar abominations is not only destructive to all womanly ease and delicacy of movement, but through the continuous and unyielding pressure causes a shrinkage

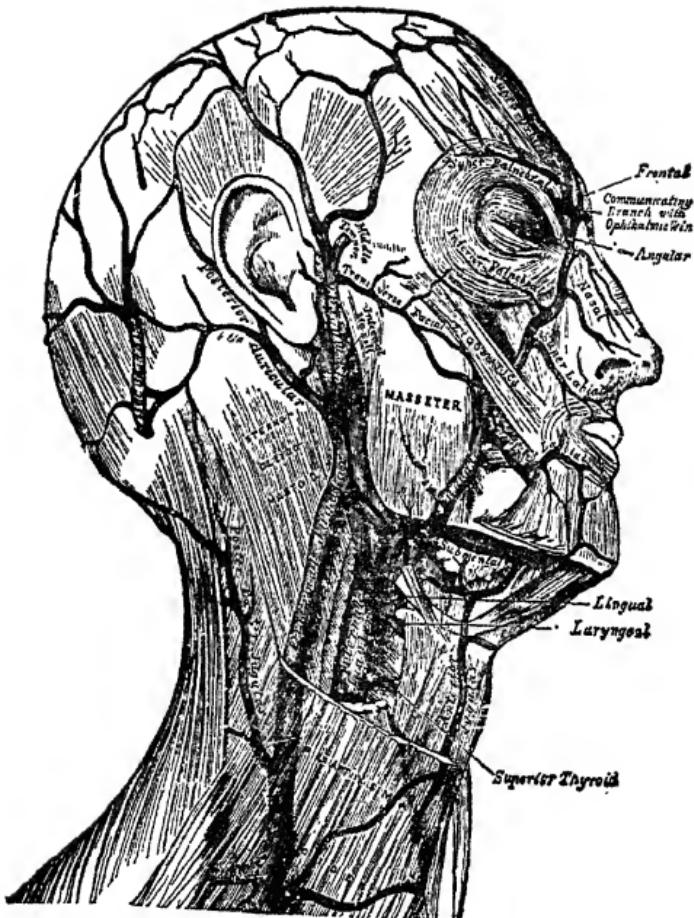


Fig. 45. SHOWING LARGE VEINS OF THE

The compression of these veins by tight neck dressing is a frequent cause of headache, vertigo, flushing of the face, redness of the nose, and disagreeable symptoms.

of the tissues, which will often in a few months destroy the most charming contours. I have seen necks displayed by a decollete gown upon which I could have traced with a blue pencil a sketch of the neckwear habitually worn. These high, tight neck corsets cannot be too strongly condemned. They absolutely ruin that elastic, responsive sway of neck and head which is, perhaps, the most charming and feminine of all womanly gestures, and which, when prevented, stiffens every motion of the body. They obstruct circulation and produce pale cheeks and red noses. They cause a wasting of the tissues and a loss of the beautiful contours of the neck and throat which are so distinctive and womanly a charm. With that ingenuity in dress which she has accumulated through many generations it is to be hoped that woman will in time realize the loss of personal charm and feminine distinction which results from this and other incidentals of "tailor made" origin, and return to more characteristic and hygienic costume.

#### TREATMENT.

As to the treatment of the wasted neck much may be done to restore the original form when this has been lost through illness, improper carriage or unhygienic dressing. The same care as to diet, exercise, bathing, &c., recommended in the chapter devoted to the treatment of the face will be found necessary in the treatment of the neck. These precautions are especially important where the wasting is the result of long standing ill health, or where, per-

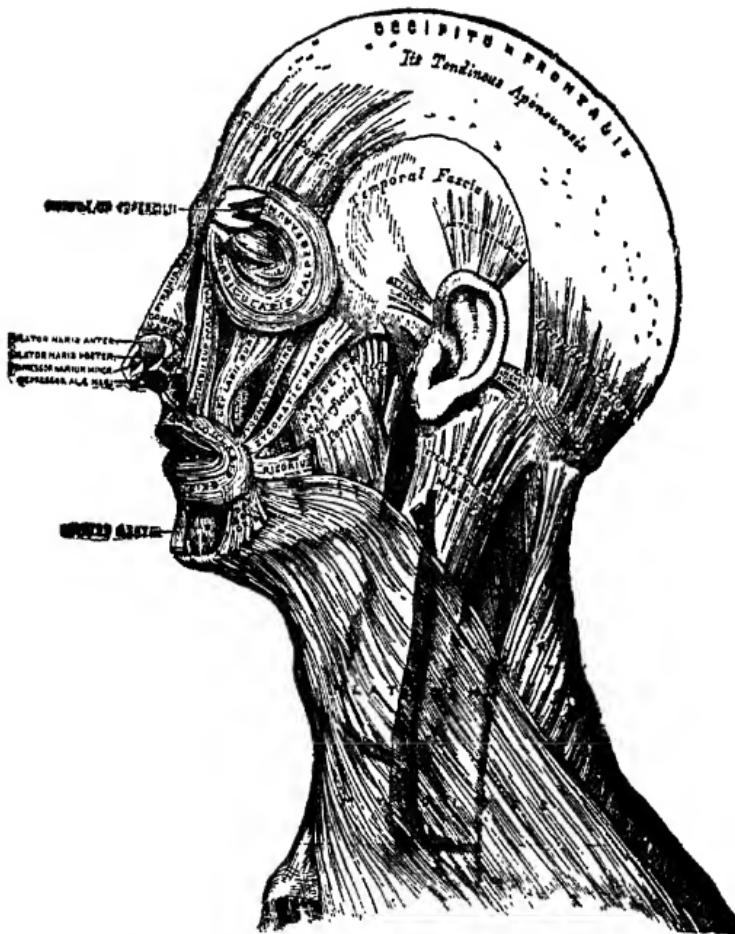


Fig. 46. MUSCLES OF THE NECK AND FACE.

Pressure of the tight neck dressing upon the muscles of the neck, cause a wasting and loss of contour in this region.

haps, the body, as a whole, has not for some time been properly nourished. Deformities and wasting of the neck due to pressure are far more readily corrected by treatment, as in these cases the atrophy is local and not due to constitutional causes.

As to directions for roller massage, I can do no better than quote from "Womanly Beauty":—

"Because of one of fashion's stamps, a round, perfect neck is the exception and not the rule. Begin to restore the beauty of the neck by insisting upon a more soft neck dressing. Wear the throat of your gowns open when indoors; give the neck a chance to improve. Then give it thorough treatment every night—and always give the neck the benefit of the same attention as the face—and at the same time. Begin this improvement of the neck by washing well with plenty of soap and warm water. Rinse in cold water, dry on soft towel and roll lightly, but evenly, around the neck with the facial roller—the right side with the left hand, and vice versa—for ten minutes. The exercise of dropping the head slowly forward, as far as it will go, then back as far as it will go, then allowing it to roll around limp, first to the right and then to the left, is a great help in developing the neck that seems to have suffered from imprisonment. Then, as a last course, bathe again in warm water and rub in a good skin food, as an external nourishment to the starved tissues. This treatment, persisted in for a month, will prove its benefits, though a longer time may be necessary to restore bad cases."



Exercise for Developing the Neck.

## COMMON DISORDERS.

The exercise referred to of dropping and rolling the head will be, if perseveringly practised, an important factor in the restoration of the neck. As regards exercise, the following will be found valuable:—Throw the head back so that the face is turned directly toward the ceiling; then turn the head slowly around toward the right as far as possible; then slowly turn toward the left, still keeping the face turned upward. This exercise should always be followed by the relaxing and rolling of the head as described above.



Fig. 48.

Showing line of  
Normal Neck

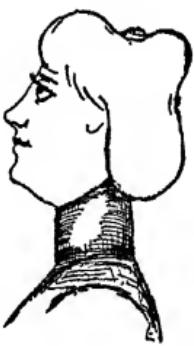


Fig. 49.

Neck Compressed  
by high, tight  
dressing.



Fig. 50.

Dotted lines show  
the degree to which  
the neck is de-  
formed by fashion-  
able neck dressing.

As regards the best means of developing the bust I quote again from "Womanly Beauty of Form and Feature":—

"If we consider the subject of physical beauty in woman, that of curve or contour of form is, perhaps, the most distinctive feature. Since Aryan



*Fig. 51. For Developing Neck.*

civilization much importance has been attached to this peculiarity of sex feature.

"Wherever we find much outdoor living there we find little need of more bust development in women. The peasant who labors in the fields, born and reared with no idea of any ultimate position in life but that of motherhood, is generously endowed in this respect, while her sister—woman of ease, spending her growing years in school rooms and fashionable society, is often lacking in this most perfect sign of perfect womanhood. Health of the body, generally, is the best groundwork for development of this part of the physique. The prime cause of non-development in the early years of maturity is some derangement of function. The nerves controlling the mammary glands claim the same centre as those of the pelvic organs. Weakness of nerves or muscle in one is indicative of the same in the other. The strength or health of the pelvic organs during the years of approaching womanhood give their sign in good development of bust. Another cause for this seeming economy of nature is a habit some mothers of girls have of making their clothing tight over the bust. Some do this through carelessness or indifference, but many do so to conceal a too pronounced figure while a girl is still in short dresses. Could they but know the harm this does, not in arresting development alone, but in its pressure upon the very sensitive nerves so potent in woman's health, there would be a great change in the dressing of many.



Fig. 52. ROLLER MASSAGE FOR BUST.

There should be absolute freedom in a growing girl's dress, and especially through the chest, bust and lower lungs, to insure a good normal figure and promote healthful womanhood.

"To those who would remedy this lack of proportion we will offer the best system ever found. The day of secrecy regarding remedies is on the wane. Common sense demands the why and wherefore of any claim of restorative power. The woman who as a result of nursing her child, or from improper care and neglect, would develop this quality known as bust measure, may do so by following these suggestions for at least three months:—

"Be sure that the digestive organs are in good working order—that the bowels move every day. Do not try to secure this by taking drugs, but by a proper regulation of your diet and the use of massage. Then take this exercise, which moves the entire body above the hips:—Every morning upon rising raise the arms slowly above the head until the fingers touch. Drop them as slowly. Repeat this twenty times. Stand at an open window and take twenty long breaths. Raise the chest and always keep a proper poise of body, whether sitting or standing.

"At night before retiring bathe the breasts lightly with cold water, dry carefully with a soft towel, and over a loose sack or undervest roll with Dr. Forest's bust developer from underneath upwards, and from the side forward, always toward the centre, throwing the chest well out while doing this;

do not do it carelessly or indifferently, but keep your mind on it and feel that you are accomplishing your desire. When the breasts have become warm and in a glow, bathe in warm water and rub in thoroughly the Health Culture Skin Food, which is absolutely pure, containing no animal fats, and the best bust food made. This will be absorbed and feed the tissues. In the morning on rising repeat the rolling treatment, but omit the warm bathing and the skin food. Do this faithfully and carefully and improvement will show itself in a week or ten days. The Dr. Forest bust developer used regularly and systematically is the greatest assistant obtainable in this work. Its action arouses the blood vessels which are dormant, and stimulates circulation, and where blood abounds life will abound. The warm pulsating currents of blood will feed and fill the tissues, and plump contour is the result. Then discard tight undergarments, do not wear the tight fitting undervests, do not wear pads that heat and press down the breasts, insist upon a loose lining in gowns over the bust, and abandon the senseless thing called a "corset cover," which has ruined more forms of women than any other article of dress and has done no good. These directions, intelligently understood and applied, will surely result in development and increase of the bust measurement.

"In some cases other parts of the body may be well developed, but the breasts thin. This treatment, which is physiological and hygienic, will

overcome this, by attracting the nutrition where it is needed and so restore and build up these parts. Remember, this is not something to be 'taken,' which never succeeds, but something to be done, and in doing it disappointment will not follow."

To these sensible remarks I have only to add that in nearly every case where the action of the bowels is not satisfactory the use of the roller over the stomach and the free drinking of water will be found a specific. Pure cold water, two quarts daily, is the best "cathartic" I know, and the only one I ever prescribe.



Fig. 53.



Fig. 54.



Fig. 55.

Another highly valuable device for the treatment of this condition is the massage vibrator before referred to. This may be used in a variety of ways.

For reaching the back and sides of the neck the massage vibrator is most convenient and effective. Lean forward, inclining the head. Take the handles of the massage vibrator, one in each hand. Pass the chain, either single or double, over the head, resting against the nape of the neck. Then,

by passing the hands back and forth the neck may be massaged even better than with a roller. (See Fig. 53.) To massage the entire circumference of the neck pass the chain, single, entirely around the neck. (See Fig. 54.)

The massage vibrator may also be used on the



Fig. 56.



Fig. 57.



Fig. 58.

front of the neck, doubled, or on the side of the neck, doubled. (See Fig. 55.)

The vibrator is also very useful in developing the muscular and glandular tissues of the chest. For this purpose it may be used either single or double, as shown in figs. 56, 57 and 58.

# OBESITY

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## CHAPTER VII.

Every disease may, in the strictest sense, be said to be a general disease. The treatment of any disorder to be effective—to be truly curative—must be constitutional. So with obesity.

In general, obesity may be said to be the result of the formation of an excess of low grade tissue, which, owing to insufficiency of the eliminating functions, is not removed. The formation of this tissue seems to be due to (a) the taking of food beyond the power of the digestive juices to convert into tissue building material, the low grade tissue thus formed being deposited as adipose; or (b) the same condition as the result of too frequent eating; or (c) the taking of an undue amount of fluids with food, in which case the digestive fluids, weakened by dilution, are unable to convert the food mass; or (d) general constitutional inactivity (indolence), the result of which is insufficient elimination, retained matter being deposited in the tissues as adipose.

This may be taken as a very brief and “unscientific,” but, it is hoped, plain, statement of the causes of obesity. Now, as to treatment.

### TREATMENT OF OBESITY.

This naturally falls under two heads, general or constitutional, and local. The general treatment

should involve, in the first place, such change in the habits of the patient as would eliminate the causes producing the disease. Secondly, methods to increase the activity of the depurating organs so that the deposits of adipose tissue already in the tissues should be removed.

The essential point as to diet is to arrange a menu of plain, simple food sufficient to sustain the body without causing such an amount of waste that the depurating organs are unable to remove it. If three meals are taken daily at least two of them should be very light. The following dietary is the result of many years of practical experience in dealing with cases of this class, and will be found sufficient to nourish the body without overloading it.

For breakfast, fruit alone, or fruit and bread, or cereal with milk and bread and butter, or cereal with fruit juice and bread and butter.

For dinner, peas, beans or lentils, served in any way desired; salad of plain green leaves, such as lettuce, chicory, celery, cress, parsley, &c., with tomatoes if desired; fresh fruits; bread and butter.

Supper or luncheon, similar to breakfast.

Animal foods, meat, cheese, eggs, &c., should be taken sparingly if at all. Spices and condiments should be avoided. A small amount of butter, salt or sugar will do harm.

It may be advisable in some cases to omit one of the light meals. This will depend upon individual circumstances and preference.

With meals no fluid should be taken. Neither



Fig. 59.

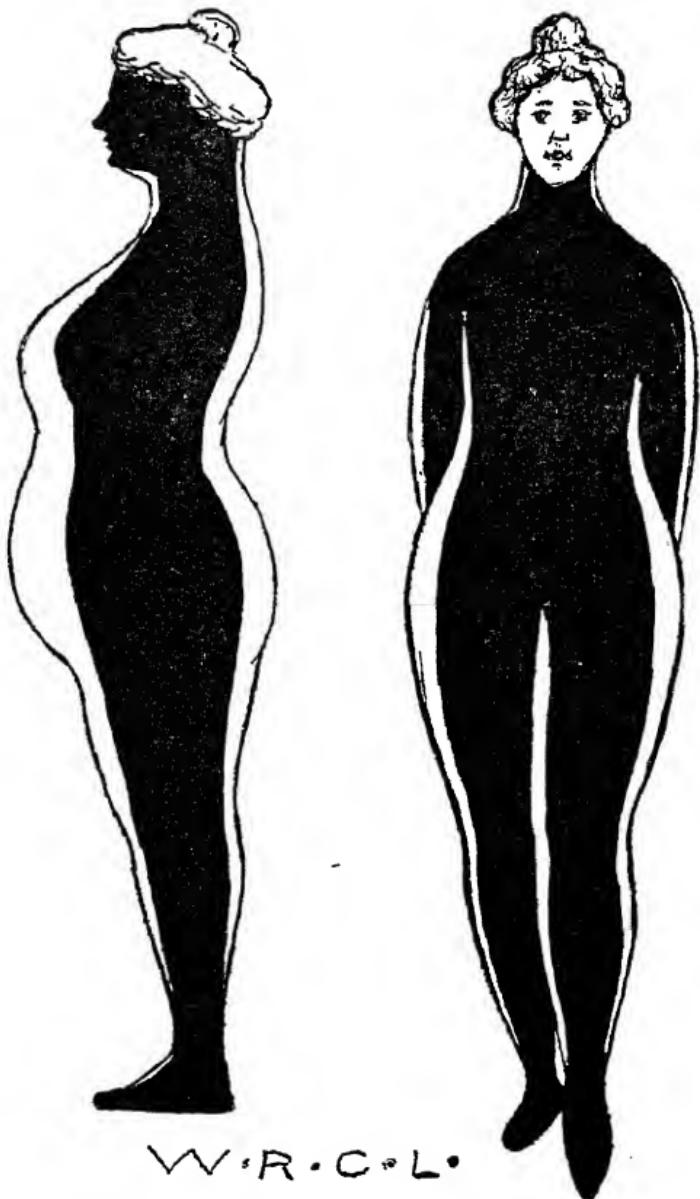
Profile of Male Figure.



Fig. 60

Profile of Female Figure.

Indicating the Area of Adipose Deposit in Different Figures  
The Solid Black Figures Show the Outlines of Normally Developed Figure,  
While the Outer Lines Show the Disposition of the Fatty Tissues.



W-R-C-L

Fig. 61,  
Profile of Erect Female Figure.

Fig. 62.  
Front View of Female Figure.

should the patient drink anything whatever during the hour preceding nor the two hours following the meal. At other times, on rising, on retiring, and between the meals he should drink freely of pure, cold water.

Still more important in the treatment of obesity are the excretions. The one condition invariably present in obesity is insufficient elimination. In general, the free water drinking will ensure proper action of the bowels and kidneys. The condition of the bowels is sometimes such that enemata (injections) are necessary. These are frequently indicated, even although there is a daily passage. For a full discussion of this feature of the treatment of obesity the reader is referred to Dr. Wright's manual, "The New Internal Bath."

The action of the skin should be assured by daily baths in tepid or warm water, followed by a rapid sponging with cold water and vigorous friction. One of the most important measures in dealing with obesity is the Turkish or sweat bath. The regular Turkish bath, followed by a vigorous shampoo, is advisable where possible. Otherwise the cabinet bath may be used. The advantage of the cabinet bath is that the head of the bather is outside of the box, and that he is not therefore compelled to inhale the hot and impure air. Air baths are also beneficial.

Exercise is indispensable. Breathing exercises and vigorous "free" exercise out of doors are best.

So much for the general treatment. But obesity

is a disorder in which local treatment is particularly effective. In no condition is roller massage more beneficial than in obesity, particularly in those cases where the deposit of adipose tissue seems to have become concentrated in some particular region.

The deposit of fatty tissue is always made at the points of least activity. The abdomen, the back, the thighs or the buttocks are frequently found to be well covered with adipose tissue while the rest of the body is practically normal. These cases are specially adapted to treatment by massage. And the massage roller, by reason of its convenience, its economy of time and its effectiveness, is here particularly valuable.

#### CHEEKS AND DOUBLE CHIN.

Adipose tissue deposited in this region is particularly unsightly, imparting an expression of grossness and alimentativeness often quite foreign to the person.

In the treatment of this condition the facial massage roller should be applied. The movement should be up and down along the cheeks and side of the face, down along the jaw, horizontally on the sides of the neck, and back and forth under the chin. Ten minutes' vigorous rolling two or three times a day will often in a fortnight produce a remarkable change in the contours of this region.

#### CHEST AND BUST.

Frequently the deposit of adipose is excessive in this region. Roller massage should be applied,

rolling up and down and from side to side over each mammary gland. Be careful, however, not to

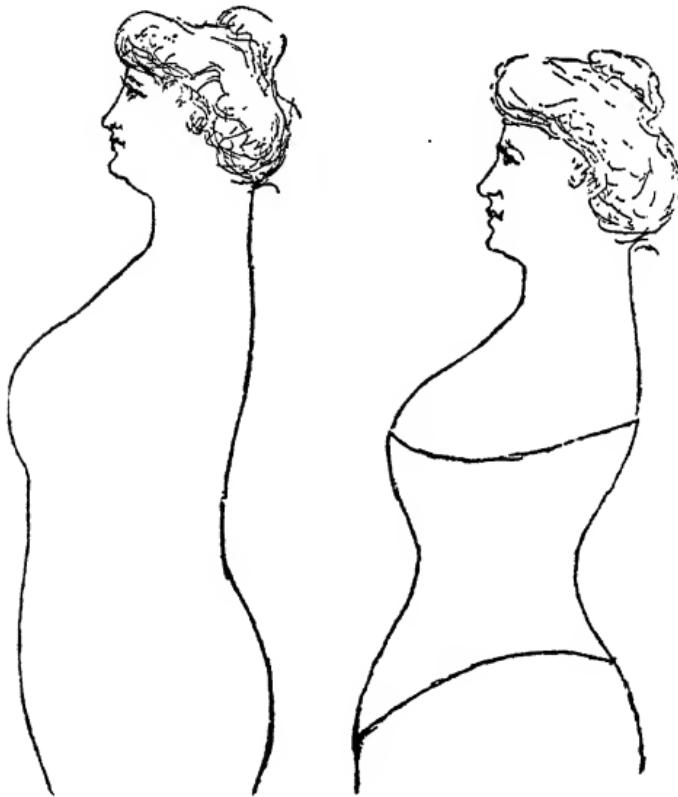


Fig. 63.

Normal Figure.

Outline of Female Figure Showing Gradual Degeneration and Loss of Symmetry, Owing to Deposit of Fatty Tissues.

Fig. 64.

Same Figure Compressed by Corsets.

use too much force, as the tissues here are very easily bruised.

## BACK OF THE NECK.

One of the most unsightly exhibitions of undue adipose deposit I have never heard mentioned, although it is very common. This consists of the formation of a pad of fatty matter over the vertebra

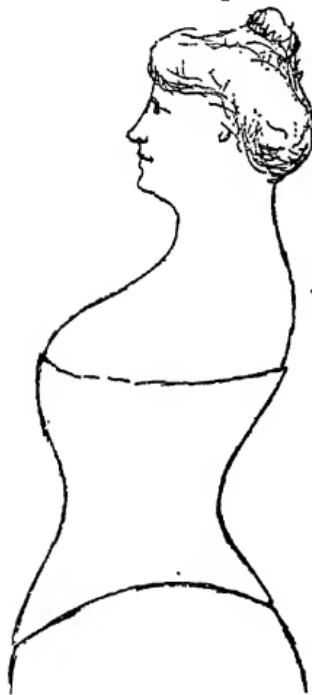


Fig. 65.

Same Showing Further Deposit of Adipose, also the Fatty Protuberance (a) over Vertebra Prominens.

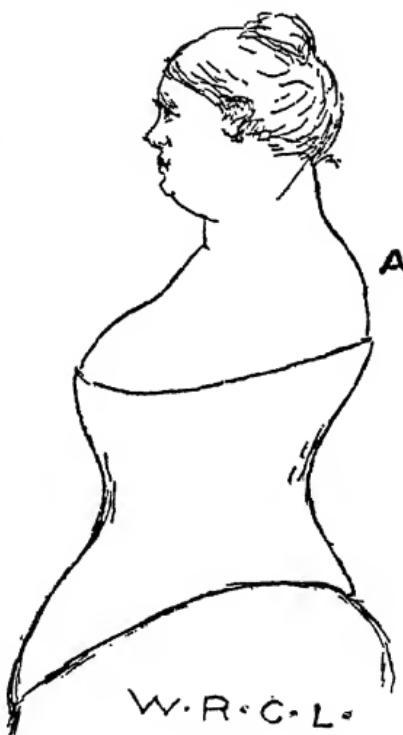


Fig. 66.

Advanced State of Obesity Marked Fatty Protuberance (a) over Vertebra Prominens. Together with Stony (Loss of Tone) of the structures.

A. A., Shows Fatty Protuberance Over the Vertebra Prominens or Seventh Cervical Vertebra.





[Fig. 69.—Roller Massage for Reduction.

prominens, or seventh cervical vertebra (see Figs. 65 and 66.)

There is no region of the body, not even the abdomen, where the deposit of adipose is so noticeable or so unsightly as here. To see a woman, superbly gowned en decollete, showing otherwise perhaps no prominent indication of obesity, but disfigured by an ugly hump just above the upper border of the back of her gown—such a sight is, to say the least, not prepossessing. Happily for the possessor of this deformity, it is readily removed by proper treatment.

Dieting or similar methods of reducing the flesh have little effect upon this disfigurement, which is usually the last evidence of obesity to disappear under the constitutional treatment of diet, baths, exercise, etc.

It is, however, readily removed by roller massage. For this purpose it is necessary to have a long rod roller. Grasp the roller in both hands, pass it over and behind the head, drawing it down along the back as far as possible. Then roll vigorously up and down over an area of four or five inches. This exactly covers the region referred to. (See Fig. 68.)

Another method of reaching the same spot with this invaluable implement is the following:—Take the roller by grasping one of the handles with the right hand, left hand free. Then pass the roller back over the head and allow it to hang downward over the area referred to. Now pass the left hand downward behind the back, and catch the other



Fig. 70.



Fig. 71.



Fig. 72.



Fig. 73.



Fig. 74.



Fig. 75.



Fig. 76.



Fig. 77.



Fig. 78.

handle of the roller (see Fig. 69). Then roll as far as possible from side to side over the vertebra prominens. Ten minutes two or three times a day spent in this way, without any other treatment whatever, will usually be quite sufficient to remove this unsightly protuberance in a few weeks.

#### THE MASSAGE VIBRATOR IN OBESITY.

In the treatment of obesity the massage vibrator will also be found of greatest value. In connection with the massage roller it is most useful in treating the double chin, the puffy neck or the undue development of the bust so frequently found in obesity. It is also especially useful in reducing the unsightly fatty protuberance over the vertebra prominens, referred to above. The back, abdomen and sides may also be treated, as indicated in Figs. 70, 71, 72, 73, 74, 75, 76, 77 and 78.

Adipose tissue is generally deposited in those portions of the body which get the least exercise. Frequently people are found whose limbs are not far from normal, but whose abdomen, back and hips are disfigured by heavy layers of fatty tissue.

In all cases of this class the general treatment of diet, baths, exercise and free water drinking between the meals for the purpose of increasing elimination will be found most valuable. Simple food, not excessive in quantity, little or no fluid with meals, daily baths and daily, or at least frequent, sweat baths, abundant exercise, preferably out of door games, walking or running with deep breathing—all these are indicated, and all will

hasten a cure. The most rapid, and if properly applied, most satisfactory, method of reducing obesity over the abdomen, hips and back is by the use of the massage roller. For this purpose the long double handled roller is best. For the abdomen the best method of procedure is as follows:—

Stand erect, take the roller in both hands and pass it rapidly up and down over the abdomen, making the heavier strokes upward. Ten or fifteen minutes of vigorous work two, three or four times a day will frequently make a noticeable difference in this region within a month, and often without any change in the habits as regards diet and exercise.

The prominent abdomen should also be rolled from side to side. (See Figs. 86 and 87). Take roller in both hands and press it firmly across and up and down over the abdominal region. As a relief to the rolling it might be well to stop occasionally, and, while the arms are resting, take a few exercises calling into activity the muscles of the abdominal. For this purpose exercises Nos. 1, 3, 4, 5, 7, 8 9 and 13 (see Chap. IV.) are especially adapted, although any free muscular work or exercise will be found beneficial.

A well-known writer upon the use of the massage roller has said:—

“In case there is a pendulous and protruding abdomen it sometimes comes from a weakening of the muscles on the sides, allowing it to droop; for this the treatment should be given up and down on each

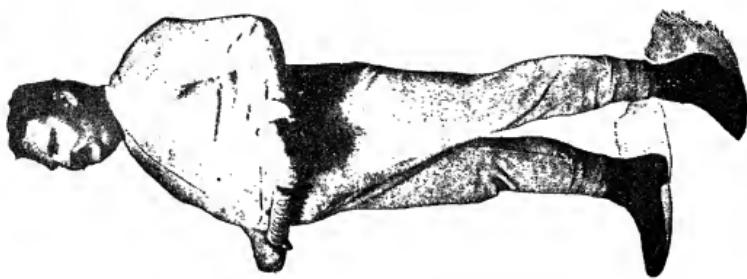


Fig. 87. Roller Treatment for Reduction of Abdomen.

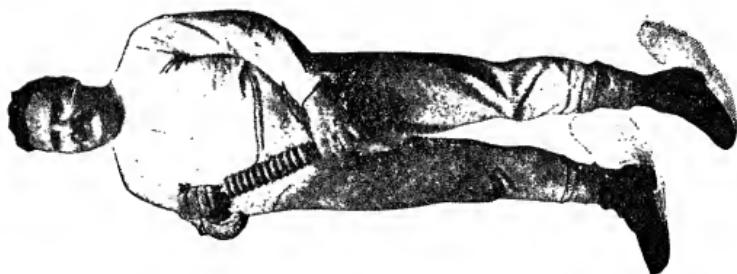


Fig. 86. Roller Treatment for Reduction of Abdomen.

side of the abdomen with a smaller roller, which will tend to strengthen and increase the elasticity of these muscles, and so draw back and hold it in place. The rolling should be applied morning and evening over the underclothing and as much as one hundred times over each part.



Fig. 79.



Fig. 80.



Fig. 81.



Fig. 82.

Fig. 79, Profile Outline of Normal Figure.

Fig. 82, Profile Outline of Abnormal Figure.

Figs. 81, 82, 83, 84, Outlines of Abnormal Figures Showing Gradual Degeneration, Owing to Deposit of Adipose Tissue.

"The roller treatment can be given more effectually over the hips and thighs than elsewhere, but all parts of the body will be benefited by the reduction of these parts and become more solid and firm.

"For the use of men and women who are strong and vigorous, yet too stout or fleshy, a special instrument has been made with handles on each end and ten or twelve wheels, each turning separately. With the use of this a firm and steady pressure can be brought to bear without any danger of injury,



Fig. 83.



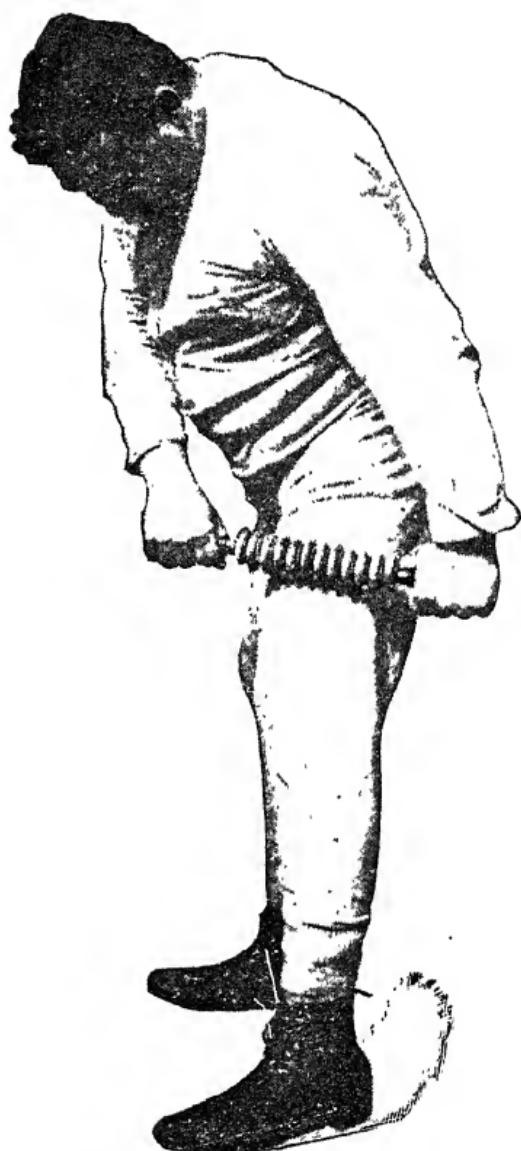
Fig. 84.



Fig. 85.

Fig. 85 is simply a sketch to illustrate the effect of clothing in concealing the deformity resulting from excessive deposit of fatty matter. This degree of obesity shown by figures 84 and 85, is not by any means rare.

and the work can be done more rapidly. The smaller size rollers may be used effectively, and ladies sometimes find these the most desirable. Many use two of the small rollers to advantage, using one in





each hand on the sides or over the limbs at the same time.

"The efficacy of this treatment has been thoroughly tested and there are many who bear evidence in their appearance and by their words as to the success of the method."

For the rapid reduction of accumulation of fat over the abdomen, the vigorous and systematic use of the long rod massage roller is undoubtedly the most effective treatment.

The upper part of the thigh, the hips and the buttocks are, particularly in people of sedentary habits, prone to unsightly enlargement in obesity. Here also, the long rod double handled massage roller is of greatest value.

Take the roller in both hands and pass vigorously up and down along the front and side of the thigh (see Fig. 88). For the posterior part of the thigh and for the back and sides of the hips, grasp the long rod roller with the right hand and pass it behind the body over the right hip. Now reach back with the left hand, taking the other handle and roll vigorously up and down upon the back and side of the right hip and buttock. Reverse for the left side (see Fig. 89.)

For reducing large thighs the massage vibrator is also of great value. It may be used in any of the ways shown in Figs. 93 and 94, according to the requirements of the case.

Reduction here may also be hastened by certain exercises, which will tend to increase the amount



Fig. 90.



Fig. 91.



Fig. 92.



Fig. 93.



Fig. 94.



Fig. 95.



Fig. 96.



Fig. 97.



Fig. 98.

of tissue broken down and excreted. The exercises mentioned in the paragraph dealing with abdominal reduction are all applicable to the reduction of the hips, thighs and buttocks, also breathing exercises, walking and other active out-of-door exercise.

The back above the waist is frequently the situation of undue enlargement due to fatty deposit. The long roller is especially applicable here. Grasp as for the hip rolling and roll up and under the shoulder blades and around to the sides under the arm (See Fig. 107).

The shoulders are often so overlaid with fat as to give an impression of grossness and clumsiness to the whole figure and to obscure that delicacy of outline which is so highly valued. This region can be effectively massaged by holding the long roller as shown in Fig. 69. Also the massage vibrator will be found useful. Apply as indicated in Figs 90, 91 and 92.

On the limbs, arms and any parts of the body where there is an excess of flesh the roller treatment can be used to good advantage for the reduction of adipose tissue. Here also the massage vibrator may be used as shown in Figs. 96, 97 and 98.

## INDIGESTION.

### Causes and Cure.

#### CHAPTER

Indigestion, using that term in its broadest sense, is the most widespread of all diseases. In fact, it is either a direct cause or a complication of all other diseases.

In a recent valuable book entitled "Diet in Relation to Age and Activity," by Sir Henry Thompson, Bart., the author, has the following to say about indigestion.

There is a very common term, familiar by daily use, conveying unmistakably to every one painful impressions regarding those who manifest the discomforts indicated by it—I mean the term "indigestion."

In children an attack of indigestion mostly terminates rapidly by ejection of the offending matter. But the indigestion of the adult is less acutely felt and is less readily disposed of. Uneasiness and incapacity for action, persisting for some time after an ordinary meal, indicate that the stomach is acting imperfectly on the materials which have been put into it.

These signs manifest themselves frequently, and, if nature's hints that the food is inappropriate are not taken, they become more serious. Temporary relief is obtained by medicine, but if the unfortunate individual continues to blame his stomach, and not the dietary he selects, the chances are that his troubles will continue or appear in some other form.

At length, if unenlightened on the subject, he becomes "a martyr to indigestion," and resigns himself to the unhappy fate, as he terms it, of "the confirmed dyspeptic."

Such a victim may perhaps be surprised to learn that

One out of ten persons so affected are probably not the subjects of any complaint whatever, and that the stomach, at any rate, is by no means necessarily faulty in its action—in short, that what is popularly termed “indigestion” is rarely a disease in any sense of the word, but merely the natural result of errors in diet.

Then it is also to be remembered that stomachs which vary greatly in their capacity and power to digest may all, nevertheless, be equally healthy and competent to exercise every necessary function. In like manner we know that human brains which are equally sound and healthy often differ vastly in power and in activity.

Thus a stomach which would be slandered by a charge of incompetence to perform easily all that it is in duty bound to accomplish may be completely incapable of digesting a small excess beyond that natural limit. Hence, with such an organ indigestion is inevitable when this limit is only slightly exceeded.

A delicate stomach which can just do needful work for the system, and no more, by necessity performs the function of a careful door porter at the entrance of the system, and like a jealous guardian inspects with discernment all who aspire to enter the interior, rejecting the unfit and the unbidden and all the common herd.

True indigestion, as a manifestation of a diseased stomach, is comparatively quite rare, and I have not one word to say of it here, which would not be the fitting place if I had.

Not one person in a hundred who complains of indigestion has any morbid affection of the organs engaged in assimilating his food, unless a temporary one, occasioned by overindulgence.

As commonly employed, the word “indigestion” denotes not a disease, but an admonition. It is the language of the stomach, and is mostly an unknown tongue to those who are addressed.

Of the thousands who suffer from indigestion in its varied forms, few realize that their disorder bears the same relation to their diet that intoxication bears to dram drinking—that a fast, or a succession of fasts, followed by diet of plain, simple

food taken at long intervals, and supplemented by free water drinking, moderate exercise and care of the excretions constitute a plan of treatment by which seven out of ten of such cases could be conducted to full recovery. If this simple fact were once understood and applied, indigestion, now one of the most common and most distressing of disorders, would soon be practically unknown.

There is in many quarters a notion to the effect that it is a good plan to eat frequently "just a snack to stay the stomach," to keep up the strength, etc. They "tempt the appetite" by savory offerings of gruel, bouillon, jellies, chocolate and other concoctions. No idea could be more fallacious than this one of "tempting the appetite." There is no doubt that many and many a death has been produced through the additional strain upon the vital forces occasioned by eating the savory, but deadly, offerings of loving friends and relatives. To the healthy man or woman overfeeding is dangerous; to the invalid or the delicate person it is deadly.

Few even among medical men realize the simple physiological fact that during the acute stages of disease the secretion of the digestive juices stops—that food taken at such a time cannot be digested—that it must inevitably putrefy within the stomach and intestines, forming poisons which are absorbed into the system until every organ, tissue and function is deranged.

It should be plainly understood that the weak-

ling, the delicate person, can digest very little; and that the acutely sick person can digest nothing at all—that in any event the patient must live on his reserve of vital force and that food given at such a time is poison. There is no doubt but that under the old fashioned system of treating acute diseases the majority of deaths were due directly to the forced feeding and drugging, and not to the disorder.

The Hospital quotes the following also from Sir Henry Thompson:—

"What is called 'indigestion' as a rule does not depend upon any fault of the digestive apparatus, but solely upon its being called upon to accomplish work which is beyond its powers; so that the remedy is not to be found in the gastric juices of the pig or in the ingestion of the various chemically prepared messes advertised as being digestible or as being demands made upon the stomach to its capacity for fulfilling them. He (Sir Henry) would leave the pepsin and the messes to be applied, if at all, by skilled physicians in cases of illness which may possibly require them, and lays down, as of practically universal application, the principle that the elderly person neither requires nor can digest as much food as the young person, and that this principle should govern the arrangement of his life.

"The total amount of his food should be steadily diminished as age advances, and this total amount should be divided among a larger number of meals than were sufficient for his wants in former days. In other words, not only should the entire daily demand upon the digestion be diminished, but the demand made at any one time should be diminished also.

"It is commonly asserted, and is by many believed, that the average duration of human life has been increased by dentistry, but Sir Henry inclines to the opinion that the loss or failure of teeth is one of nature's kindly warnings that the use of them, and by implication the use of foods

which require their active exercise, should be diminished in corresponding proportion.

"The principle which he applies to food he applies also to all forms of alcohol, and his contemptuous rejection of the idea that 'wine is the milk of old age' reminds us of Sir James Paget's frequent saying that this or that was as 'false as a proverb.' "

As Sir Henry is himself in the seventies and a remarkable example of a healthy, vigorous and useful old age, these words have a peculiar interest and authority. Almost without exception the health reformers have died early, probably because most of them have been extremists, and extremism is always fatal both to physical and to mental health. Sir Henry Thompson, however, although a lifelong student of food and diet in their relation to health and disease, is absolutely free from bias or prejudice, and in his hearty old age is, in the words of a well known novelist, "the example of his own sermon."

Under normal conditions matter taken as food is converted during its passage through the digestive tube (see sketch shown in Figure 100) into substance suitable for the repair of the body tissues. The process of conversion is called digestion, and any irregularity in its performance is known as indigestion. These irregularities in the digestive process are often so complex and obscure as not to be understood, but in a general way all cases of indigestion may be arranged into two classes, stomach indigestion (often called atonic dyspepsia) and intestinal indigestion. It is probable

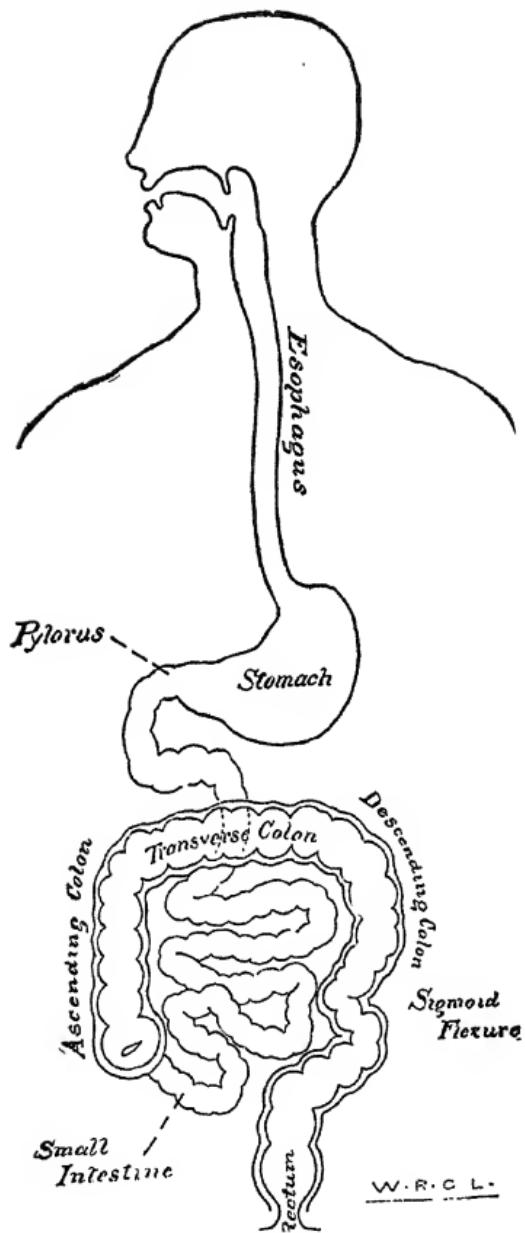


Fig 100. Diagram of Digestive Tract, Small Intestine Shown in Section.

that every well marked case of indigestion involves irregularity of the functions of both stomach and intestine. The distinction between stomach and intestinal indigestion is made in accordance with the prominent symptoms.

#### CAUSES OF INDIGESTION.

The causes of indigestion are many. First in importance is incorrect diet—food excessive in quantity or variety or improper in kind—usually all three. This is usually complicated by insufficient exercise, poisoned air, overwork, worry or other unhygienic conditions.

#### OVEREATING.

Overeating is all but universal. The sedentary worker suffers more from this than the laboring man; because in the case of the laborer, the physical activity itself creates not only the demand for food, but the power to convert that food into tissue. The sedentary man has an equal need of nourishment, but because of inactivity, is not able to convert his food into assimilable materials. The digestive fluids are poured out in proportion, not to the amount of food taken, but in proportion to the needs of the body, as determined by its physical activities.

Now, when the sedentary worker takes, as he often does, four or five times as much food as he needs, the digestive fluids are unable to convert so large a quantity. The food, therefore, in its passage onward through the digestive tube, instead of being digested, decomposes and forms a putrifying, noi-

some mass. This mass of fermenting food, unspeakably foul and noxious, frequently contains poisons which, absorbed into the system, cause symptoms which vary all the way from simple headache or dizziness to sudden death from "apoplexy" or "heart failure." Food excessive in quantity or variety, or both, is the most frequent cause of indigestion.

#### EATING WHEN FATIGUED.

Digestion is work—work requiring a considerable outlay of energy. When the body is fatigued food cannot be digested. If food be taken at such a time it simply putrefies within the alimentary tube, involving all the discomforts and dangers of self poisoning (auto-intoxication).

The secretions of the body are quickly affected by mental conditions. Just as certain definite mental states will cause the saliva to flow, or as the thought of food to a hungry man will occasion an outpouring of the gastric juice, so will worry, grief or excitement cause a stoppage in the flow of the digestive fluids. Indigestion is, of course, the result.

#### THE SYMPTOMS OF INDIGESTION.

The symptoms of indigestion are numerous and varied. Where the difficulty is mainly in the stomach (that is, gastric indigestion), the more common symptoms are uneasiness, tenderness or pain in the region of the stomach, gurgling, nausea, vomiting, sour eructations, flatulence, sore throat, white and coated tongue, sore mouth ("canker"), sour or bad taste in the mouth, headache (migraine, hemi-

crania), dizziness, faintness, blurred vision, constipation, diarrhoea, nervousness, nervous twitchings, palpitation of the heart, ringing in the ears, coldness of the hands and feet, flushing or paling of the face, drowsiness after meals, intense thirst after meals, continual sense of hunger, insomnia, loss of appetite, pain between the shoulders, soreness and stiffness of the muscles.

In addition to these symptoms, and still more grave, are the indications of the absorption into the system of the animal or "cadaveric" alkaloids, known as ptomaines, leucomaines, &c., formed in the alimentary canal during the process of putrefaction. Among the graver symptoms of this "auto-intoxication" or self poisoning are attacks of muscular rigidity, resembling catalepsy, sudden and deadly faintness, syncope and collapse. Indeed, death often results from the toxic action of these absorbed poisons. Most of the deaths attributed to "apoplexy" and "heart failure" are in reality due to auto-intoxication from the poisons formed by a putrefying mass in the stomach or intestines.

This is a long list, and, of course, we seldom or never find all the symptoms here mentioned in any one case. It is not unusual, however, for a patient to suffer from a majority of the symptoms enumerated. This is well shown by the following letter sent to me by a subscriber of *Health-Culture*, to be answered in the Correspondents' Column:—

W. R. C. LATSON, M. D.,

Dear Sir:—As a reader of your valuable journal,

I beg to present my case for consideration. I have been in poor health for about eight years, and have been treated by many doctors and taken an immense amount of medicine, in spite of which I have grown worse and worse, until now my condition is almost intolerable.

I am in almost continual pain. The parts which suffer most are my head, heart and stomach. My head has in it a continual ringing, roaring, singing, &c., of about the same intensity. This is not a "ringing in the ears," but seems in the head itself. My head feels very large, full, heavy and congested. On stooping over it feels as if it would burst. At times I am so dizzy that I cannot stand or walk; at others, have severe headache in front, sides or back of the head. My heart beats loudly and rapidly all the time. The beating can be heard and felt distinctly, especially at night while in bed, without application of hand or ear. It seems to rock the whole body and often actually shakes the bed. There are also strong pulsations and nervous twitchings in various parts of the body. I suffer very much from sharp pains and dull aches in the region of the heart and down the left arm and shoulder. The pulse is often very slow and full. The stomach is in an acid condition most of the time. The region of the stomach is very sensitive, the slightest touch being painful. On rising in the morning there is a peculiar copperish taste in the mouth. Sometimes there are acid eructations so sour as to set the teeth

on edge. All foods disagree, nothing digests, food is regurgitated or vomited hours after eating. Intensely hot burning in stomach and throat, with eructation of gases and fluids so sour as to be almost unendurable. After drinking water, loud, splashing sounds are heard in the stomach. My tongue is white, heavily coated and full of little red sores. The skin of my face is pale, drawn and covered with pimples and blackheads. The teeth are white, chalky and crumbling, too brittle to hold fillings. My hair is prematurely gray (I am a young man of twenty-four). My eyes are bloodshot and full of yellow streaks. I have been treated by many doctors and have taken an immense quantity of medicine. In spite of everything, however, I have grown steadily worse, until now my condition has become almost intolerable.

I shall be most grateful for any advice or help you can give me.

Yours very truly,

C. H. W.

Not a pleasant picture, surely, and yet every physician in actual practice knows of many such cases.

It is often difficult to make these patients understand that all these varied and sometimes alarming symptoms are the result of undigested food in the alimentary canal. To analyze each symptom so as to be intelligible to the layman is not usually practicable. Nor is it possible to do so within the limits of this paper. Imagine the complex mass of solid

and liquid matters comprising an average meal, undigested, fermenting, putrefying, passing slowly down the digestive tube thirty feet long, at the rate of perhaps two feet in an hour. As it passes along, growing constantly more and more offensive and poisonous, the walls of the tube, true to their function, absorb, absorb, absorb, not food, mind you, which they ought to get—which the body needs for its maintenance—not food, but the poisons resulting from the decomposition going on the mass. Thus in the dyspeptic the body is at once starved and poisoned. Even more, it is overworked; for it is only by the greatest activity of the liver and other organs in antidoting the deadly effects of the absorbed poisons that life is preserved. Sometimes, owing to weakness or fatigue, those organs cannot counteract the effect of the absorbed poisons. Death is then the result. The man who, after a day of arduous labor, came home tired and ate a hearty meal of ham, bread and butter, pickles and several glasses of milk died—died because his tired organs could not fight the poisons formed within his body. The cause of this man's death was given as "heart failure." The term "heart failure," however, is too often merely a scapegoat. The heart fails because the nervous system which actuates it fails, and the nervous system fails because it is poisoned through the absorption into the blood of the toxic matters formed in the alimentary tube.

#### TREATMENT OF INDIGESTION.

The first point in the treatment of indigestion is

the removal of the cause. If the patient is over-worked he must understand that there is little hope of relief until the strain of overexertion is removed. The same applies to worry or to any of those forms of "pleasure" which have a tendency to deplete the vital forces. The excessive use of alcohol, tobacco, tea, coffee and other poisonous drugs is a frequent cause of indigestion. In all such cases the drug must be discontinued before any real improvement can take place.

#### FASTING.

In some cases it is advisable to give the over-taxed and irritable organs complete rest. For this purpose I usually prescribe in such cases a fast to last for one, two or three days. The first twenty-four hours of this fast is apt to be a rather trying ordeal for the patient. The second day, however, he is usually more comfortable than for a long time. The third day of such a fast is often the most comfortable day that he has known for years, and he is then quite willing, usually to extend the fast several days more. This, however, is seldom necessary.

#### WATER DRINKING.

During the fast the patient should drink freely of water, hot or cold, taking from two to four quarts daily. This will do much to relieve the faintness, dizziness and palpitation liable to occur during the early portion of the fast, and which are due to the absorption of the undiluted contents of the stomach and intestines. During the fast the lower bowels should be cleaned by large warm enemata

(injections). The patient should take a warm or tepid bath each day, and should devote a few minutes several times each day to breathing exercises. Otherwise he should keep fairly quiet. For indigestion, especially in severe cases, such as the one cited above, a fast followed by a proper dietary is the rational and perfect course.

#### DIET.

In the treatment of indigestion diet is a matter of first importance. But here only very general directions can be given; for the prescription of the diet in indigestion must depend very largely upon the peculiarities of each case. The recommendation of the same diet for every case is absurd. The chopped raw meat diet, the grape diet, the raw grain diet, the milk diet—no one of these will help every case.

In general I should suggest that, after a fast lasting from twenty-four hours to three days, the patient should take two meals daily. The first meal may consist of some good cereal, with or without fruit juice, and whole wheat bread; or the meal may be made up of fruit alone, say a raw apple, a few grapes and one or two oranges.

It may be necessary to remark that raw fruit, while a most distressing article of food when introduced into a stomach half filled with the rotting residuum of a half dozen meals, will usually be found quite different when taken into a clean stomach.

The second meal may consist of the cereal as before, with or without fruit juice, and whole wheat

bread, or of stewed or raw fruit with whole wheat bread. The quantity of these meals should be moderate. After a few days without accident or discomfort a salad may be added to the second meal. This salad should be made as follows:—Take a few leaves of lettuce, cabbage, spinach, parsley; also cucumber, radish, leek and, if desired, onion. Place all in a hashing dish, mince up fine and serve, dressed with a little olive oil (if obtainable, nut oil is better) and a squeeze of lemon juice.

#### FOOD COMBINATIONS.

As to food combination, the rules are few and simple. The first is that food should be solid. If the food contains an excess of fluid (soups, etc.), or if much fluid is taken with the meal, mastication is not likely to be properly performed, and the starchy parts of the food enter the stomach and intestines entirely unprepared to be acted upon by the agents (amylolytic ferments), through the action of which they are converted into assimilable materials. Furthermore, if much fluid be taken the gastric juice is so diluted and weakened as to be unable to perform its function. In either case indigestion is the result.

In cases where the stomach is irritable it is well, as a rule, to avoid combining cooked and raw food at the same meal. Fruits do not combine well with cooked vegetables, nor with milk, cream, cheese or eggs. Milk and cream are, for many reasons, undesirable articles of food. When combined with fruit, sugar, cooked vegetables, even with cereals, they are apt to cause difficulty.

For further information on the important matter of diet, those interested are referred to my little book, "Food Value of Meat," in which the whole subject of diet is set forth briefly and plainly, with model menus and suggestions as to food combinations.

#### EXERCISE.

Exercise is of great importance in the treatment of indigestion. The best forms of exercise are those that secure the most general activity of the muscular system with pleasurable exhilaration and diversion. The best of all exercise is play of various kinds. Outdoor games, such as tennis, golf, hare and hounds, skating, walking and so on, are most beneficial. Exercise taken indoors and as a necessity is less advantageous, but is necessary where the more stimulating outdoor exercise cannot be taken.

As to special exercises adapted to the relief of indigestion, Nos. 1, 3, 5, 7, 8, 10, 11 and 12 of those described in chapter IV., entitled Special Exercises, will be found particularly valuable. On the whole, however, free exercise out of doors is preferable to any routine movements.

Concerning exercise, it should be remembered that it should never be taken directly preceding or following a meal, and that it should not be carried to the point of fatigue.

#### MASSAGE.

Massage, also, is of great value in indigestion, especially in that large proportion of cases in which there is dilatation or prolapse of the stomach. For

convenience and efficacy I can recommend the massage roller in these cases.

The best method of application is the following:—Fifteen minutes after the meal lie down on the back, drawing up the knees so as to relax the abdominal muscles. Now take the roller in both hands and roll up and down and from side to side across the abdomen over the stomach for ten or fifteen minutes. ( See Fig. 100.)

#### BATHS.

The best bath in general is the morning bath, taken in tepid or warm water, followed by rapid cold sponging and vigorous friction. The Turkish or sweat bath once or twice a week will be found beneficial. Often a five minute cold sitz bath is helpful. The moist abdominal bandage, which is simply a wet cloth eight inches in diameter, placed over the stomach and held in place by a bandage, is often useful.

#### LAVAGE OF THE STOMACH.

Washing out of the stomach by means of the oesophageal tube is sometimes necessary and often useful. It has been much overdone, however, and has been productive of harm for that reason. The use of the stomach tube by the patient is to be discouraged as dangerous, in fact, fatal accidents are liable to result.

#### ENEMATA.

Constipation is an almost invariable complication, or, rather, symptom, of indigestion. The rational cure for this is to be found in free water drinking, proper food and sufficient exercise. In

addition to these I should suggest enemas of warm water, taken daily for a week or ten days, then three times a week for two or three weeks, then twice weekly for a few weeks longer, and finally discontinued as the need for them ceases. These enemata are best taken by means of the colon syringe.\*

In conclusion I may remark, those suffering with indigestion will do well to bear in mind the following hints:—

1. Eat not more than two meals a day.
2. Divide meals by an interval of at least six hours.
3. Drink little or nothing with meals, nor during the hour preceding nor the two hours following the meal. At other hours drink freely of pure, cold water. You need at least two quarts a day.
4. Eat slowly, and masticate each mouthful thoroughly. A great hygienist has said:—"The more time the food spends in the mouth the less time it will spend in the stomach.
5. Foods that are either very hot or very cold should be avoided. The food should be near the temperature of the air.
6. Overeating is the great sin of the day and the prime cause of disease. The dyspeptic should eat very little. It is not what you eat, but what you digest, that nourishes the body.
7. It is most important that for a half-hour be-

\*Dr. Wright's New Colon Syringe, with the long flexible rubber tube is the proper one to use.

fore and for an hour after the meal no exercise should be taken.

8. Never eat between meals.
9. Never eat when fatigued or excited.
10. Never eat, under any circumstances, more than two or three different kinds of food at the same meal. Variety of foods is most pernicious, because at the same time it tempts to overfeeding and taxes the digestive organs.
11. Cheese or "high" meat or game are especially dangerous, being liable to produce "auto-intoxication" with all its dangers.

## CONSTIPATION.

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### CHAPTER X.

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Among the disorders of civilized life constipation is one of the most widespread. Few people realize how few are exempt from this disorder. Among the sufferers are found those of every age, from infancy onward, and of various habits, occupations and temperaments.

Constipation is so common that it is frequently considered of slight importance—rather an inconvenience than a serious disorder. This is a grave error. Habitual constipation is always a serious matter, for it increases the liability to many other diseases.

Dr. Lionel Beale, a well known medical writer, says:—

“It is quite astonishing how many different derangements of the health may result from imperfect action of the secreting and expelling structures of the bowels. The general health soon suffers; the clear, florid complexion disappears and the skin becomes sallow; the capillary circulation through the tissues is miserably sluggish, and the patient complains of cold hands and feet. The muscular and nervous systems do not respond to stimulus as quickly and vigorously as they should, and there is indisposition to exertion of every kind. People

suffering thus may go on with their work, but it is performed, so to speak, against the grain, and as though the workers were heavily weighted."

Constipation is a usual complication of acute disorders, and whenever present should receive prompt treatment.

It should be understood that chronic constipation may be present even although there is a regular daily evacuation of the bowels. In cases of this class the constipation consists in the retention of a portion of the fecal matter in the intestine. On this subject an authority has said:—

"Bear in mind that, accurately speaking, constipation means a loaded colon; now, if from one end of this organ a small portion is discharged daily, the colon still remains full by the addition at the other end, and thus constipation is present and continuous, even if there be a daily discharge."

#### CAUSES OF CONSTIPATION.

The causes of this disorder are many and varied. Perhaps the most common cause is an insufficient amount of fluid in the system. The human body is about eighty-seven per cent, or nearly nine-tenths, water, and needs at least two quarts of water daily to keep it in proper working order. Few people get this much, and constipation is one of the many evil effects of this water starvation.

Another common cause of constipation is neglect to evacuate the bowels promptly whenever the presence of the fecal mass is felt in the rectum.



Fig. 101.

Normal colon. Arrows show course of fecal matter.

Fig. 102.

Abnormal colon contracted and bent into curves by pressure of corset.

Fig. 103.

A normal colon prolapsed. This condition may result from general loss of vitality or from constipation.

a, cecum. b, ascending colon. c, hepatic flexure. d, transverse colon. e, descending colon. f, f, f, sigmoid flexure. g, rectum. h, anus. i, sphincter ani.

This important "call of nature" is neglected for a thousand trivial reasons. Frequently the habit is acquired in childhood, and long before adult age is reached the function of the intestine is impaired and chronic constipation has been acquired. Children can and should be made to understand by a frank explanation of the matter, that the retention of the fecal matter is injurious and uncleanly. To this explanation they are plainly entitled, since ignorance and neglect of this function must lead to such grave results. I have been able to make this matter perfectly clear to an intelligent child of five years.

As to adults it would seem incredible were it not a datum of every day experience, that so important a function could be deliberately neglected. Yet every doctor knows that the failure to empty the bowels at the plain intimation of its necessity is one of the most common causes of constipation and its resulting evils.

Another frequent cause of constipation is the pressure of tight clothing. The corset is particularly injurious in this respect. The pressure of the corset occurs at such a point as to compress the transverse colon, crushing it together so as to make it difficult (often impossible during the time the pressure is kept up) for the fecal mass to pass through the tube. Only when the corsets are removed can the fecal mass pass the strangulated points. Furthermore, the wearing of corsets restricts the intestinal movements (peristalsis), and,



Fig-104. Showing method of using medium sized roller over the abdomen, following the course of the colon.

through pressure upon the "abdominal brain," as the pneumo-gastric ganglion is frequently called, interferes with all the bodily functions.

#### DRUG MEDICATION IN CONSTIPATION.

One of the most intractable forms of constipation is that caused by taking cathartic drugs. Drugs taken to relieve constipation are classed as laxatives, cathartics or purgatives, depending upon their severity. In general, their action is to cause an irritation of the delicate mucous surfaces of the intestinal tube and an increased flow of water into the intestine. The fecal mass is thus made more soft and fluid, and passes more readily through the intestines. This, however, is only the primary action of the drug, for this withdrawal of fluid from other portions of the body results in a reaction which drains the intestine of its fluids and renders the fecal mass more dry and tenacious than before. It should be clearly understood that, while the first effect of cathartic drugs is to relieve the bowels, the second and permanent effect is to increase the constipation. I feel safe in saying that no case of constipation ever was or ever could be cured by drugs; while, in many thousands of cases, chronic constipation of the most intractable type has been caused by the use of "liver pills," "dinner pills" and other more pretentious, but not less injurious, medications.

The treatment of constipation by drug medication leads to so many injurious results that there is now among intelligent medical men a strong disin-



Fig 105 Method of using long rod roller over abdomen for the purpose of stimulating pneumo gastric centre ("solar plexus") as well as increasing the activity of the colon.

clination to prescribe drugs for constipation and a growing recognition of the efficacy of hygienic and mechanical measures.

Thus, Dr. H. Illoway<sup>1</sup> recommends "that in habitual constipation the mechanical methods of treatment should be employed as the most appropriate and most successful;" and remarks, further, "that it is the consensus of the most eminent clinicians that only by these measures can the trouble be at all overcome in cases of any duration."

So also eminent European authorities, such as Trousseau,<sup>2</sup> Le Marinel,<sup>3</sup> Coutarde,<sup>4</sup> Gassorowitz and many others have expressed their convictions as to the inefficacy and danger of drug medication and the curative value of mechanical measures in the treatment of constipation.

Another frequent cause of constipation is deficient peristalsis. Peristalsis is the rythmical, wormlike movement of the stomach and intestines by means of which the food mass is propelled onward through the alimentary tube until finally ejected. As a result of general nervous debility, the nerves supplying the intestines sometimes fail and the persistaltic movements become slow and weak. The result is constipation, sometimes of stomach as well as bowels.

It is not unlikely that constipation may be

(1) Constipation—Its Treatment by the Mechanical Measures. H. Illoway, M. D., in Medical Record April 8, 1899.

(2) Clinical Medicine, Philadelphia.

(3) Annales de la Societe Royale des Sciences Medicales et Naturelles de Bruxelles, 1890.

(4) Journal du Practicien, 1896.

## COMMON DISORDERS.

caused by the use of defective rectal tubes. If the rectal tube used be too short the pressure of the water injected may be so great as to cause "ballooning of the rectum." This means a stretching of the rectum and weakening of the structures of the rectum, and ultimate inability to perform its normal functions. In taking an enema the irrigation should be applied by a flexible rubber tube of



. 106.

such length as to reach at least up to, if not beyond, the sigmoid flexure.

Relaxation of the abdominal muscles and consequent prolapse of the stomach and intestines is another frequent cause of constipation. Dilatation of the colon is usual in these cases. This dilatation occurs most frequently at the sigmoid flexure, (See Fig. 101, f. f. f.), less often at the hepatic flexure. (See Fig. 101, c.) Sometimes the entire colon

is enormously distended by masses of hardened, dried fecal matter.

Colitis, or inflammation of the colon, is a very common cause of constipation. Colitis is, in fact, at once a cause and a result of constipation. Other causes of colitis are overfeeding, too frequent feeding, condiments, alcohol, &c.

Constriction of the sphincter ani is sometimes a cause of constipation. The sphincter ani is a circular band of muscles which guards the end of the intestinal tube. Normally this muscle is contracted, except during defecation; when it relaxes and allows the feces to escape. It has often occurred in my practice that patients who were very nervous and tense failed to properly relax the sphincter ani in defecation. In every case marked constipation is the result of this false and excessive effort.

The severe muscular effort in these cases extends to the sphincter ani and the more the sufferer strains the more tightly he closes the anal opening.

Lastly, constipation may result from some purely mechanical obstruction, such as foreign growth causing strangulation of the gut, stricture of the intestine, &c. &c. As just explained, corset wearing causes such a constriction.

#### CONSEQUENCES OF CONSTIPATION.

The results of constipation are so numerous, so far reaching and so grave, that a volume might be written regarding them. The space at my disposal will, however, allow only of brief notice of a

few of the more frequent and important.

The fecal mass represents the residue of the food (the undigested and innutritious matters) and the broken down tissue of the body. This matter when once deposited in the colon, should be ejected immediately. If retained it at once putrefies and forms poisons. These poisons are absorbed from the intestine (auto-intoxication, self poisoning) into the body. The results of this auto-intoxication are various, often grave, occasionally fatal. Simple headache, "migraine," faintness, dizziness, vertigo, suffusion of blood to head and face, coldness of hands and feet, pallor, rigors, cataleptic or epileptiform seizures, palpitation or other irregularities of the heart, abdominal throbbing, convulsions, mental depression, mania, fatal heart failure and apoplexy have all been traced to auto-intoxication from putrefaction of fecal matter retained in the intestine.

Perhaps the most destructive effect of chronic constipation is that, owing to the constant presence in the intestine of a mass of irritating putrefactive matter, the mucous coating of the intestines becomes the seat of chronic inflammation. This inflammation, in varying degrees, is probably present in the vast majority of "civilized" people. The result of this condition is the actual destruction of the absorbing organs which take up the food. Such organs being destroyed, nutrition must necessarily be impaired and chronic and incurable weakness and emaciation are the result.

Wherever constipation is present as a complication in any other disorder, the condition is rendered more grave thereby, and the constipation should be relieved at once. In fact, the first point in the rational treatment of any disease is to **cleanse** the lower bowel and to keep it free of retained fecal matter.

#### TREATMENT OF CONSTIPATION.

It is gratifying to be able to state that notwithstanding its prevalence, its gravity and its absolute incurability by the old drugging system, constipation, under proper treatment, is one of the most tractable of disorders. In most cases the **cure** is prompt and simple.

The curative methods employed in the modern rational treatment of constipation may be considered under several heads, as follows:—

1. Hygienic measures.
2. Special exercises.
3. Enemata.
4. Massage.

Under hygiene we will consider diet, water drinking and bathing.

#### DIET IN CONSTIPATION.

As to diet, there is no special regime necessary beyond exercising care that the food is simple and nutritious, that it is not excessive in quantity or variety, and that the meals are not too frequent. Breakfast may consist of cereal with fruit juice, milk

or cream, and bread and butter, or of cereal with fruit and bread, or the meal may consist of fruit alone. For dinner, peas, beans or lentils, baked potato, boiled rice or cereal, salad or fresh green leaves with simple dressing of olive or nut oil and lemon juice, fruit, bread. Luncheon or supper should be light meals, similar to breakfast. It is frequently advisable where circumstances will permit to omit the breakfast, luncheon or supper, taking two meals a day instead of three. Meals should be very simple. The treatment is often rendered ineffective because of the colitis (intestinal inflammation) caused by too large, too complex or too frequent meals. Meats, eggs, cheese, spices, condiments, tea, coffee and tobacco should be avoided. Alcoholic beverages are to be entirely tabooed. Milk and cream should be taken sparingly, if at all.

#### WATER DRINKING.

The water drinking is perhaps the most important feature of the rational treatment of constipation. I consider water the only justifiable cathartic. Let the patient on rising drink two tumblers of cold water. After this eat nothing for at least three-quarters of an hour. Little or no fluid should be taken at meal times nor during the half hour preceding or the two hours following a meal. At other times, however, the patient should drink freely of pure cold water. He should take between two and three quarts of water every day. This alone will often insure proper action of the bowels,

as well as exert a good influence upon all the bodily activities.

#### BATHING.

A daily bath is a necessary condition of health and is an essential of this treatment. The Turkish or sweat bath is also an important measure. One, two or three a week may be taken, according to individual needs and convenience. A cold sitz bath of five minutes' duration is also beneficial in equalizing the circulation and toning up peristalsis.

#### SPECIAL EXERCISES FOR CONSTIPATION.

Free general exercise is necessary to proper functioning of the body. The patient should take all the free exercise possible, being careful, of course, not to overtax the strength.

There are certain special movements which I have found valuable in stimulating the action of the intestines. Among the best of these may be exercises Nos. 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 15, 16 and 17 described elsewhere in this work. Nos. 3, 8, 9, 10, 12 and 17 will be found of special service. These exercises can hardly be overdone. They may be practised for ten or fifteen minutes, two, three, four times or even more often during the day, according to individual strength and circumstances.

#### ENEMATA.

As regards the treatment by enemas, I can do no better than refer those interested to Dr. Wright's excellent little book, the New Internal Bath. I would remark that under any circumstances the

lower bowel should be evacuated daily. If this does not occur spontaneously, the enema, in the form of the sigmoid flushing described by Dr. Wright, should be taken daily until the treatment has restored the normal function of the bowel.

#### MASSAGE IN CONSTIPATION.

The results of massage properly applied in cases of constipation are:—

1. Stimulation of the pneumogastric ganglion ("solar plexus"), thereby accelerating the peristaltic movements.
2. Relief of portal congestion, which is always present in constipation.
3. Breaking up old, dried, impacted deposits of fecal matter retained in the folds of the colon.
4. Development of abdominal muscles and relief of the prolapse of the stomach, intestines and other organs, which is frequently present.
5. Mechanically aiding in the ejection of the fecal matter.

To accomplish all these purposes the massage roller is especially adapted because of its freedom from skin friction and its adaptation to reaching the deeper tissues.

In applying roller massage for the treatment of constipation the position is important. There is a certain advantage in standing, owing to the greater freedom of the body and arms. This is, however, more than offset by the added resistance made by the tense abdominal muscles to the roller. The best position is the following:—Lie upon the

back, with the knees well drawn up. (See Fig. 106.) Now take a deep, full breath. Then, without holding, exhale the same slowly and gently. The roller should be of medium size and should be held with both hands. Always empty the bladder before commencing this treatment.

Now, lying flat upon the back as directed, expel the breath gently, so as to fully relax the abdominal muscles. Then grasp the roller in both hands, place it directly over the stomach, and roll firmly and slowly up and down over a distance of about eight inches ten times. Then take and gently exhale another breath. Now roll firmly and slowly from side to side over the same region ten times. Another breath; then exhale and repeat. The object of this is to directly act upon the pneumogastric ganglion, the nerve centre which controls the action of the bowels.

Lying on the back as directed above, let the breath out, relaxing the abdominal muscles completely. Now grasp the roller in both hands, place the same low down on the right side of the abdomen, press down firmly, and, still maintaining the pressure, draw the instrument slowly upward for about six inches. Repeat this six times, making the upward strokes heavy and the downward strokes light. There will usually be little difficulty in finding the course of the colon, particularly if it is loaded with fecal matter. If you cannot feel it with the hands, simply follow a course up the right side of the abdomen, then straight across about on

a level with the navel, then down the left side toward the middle of the pelvis. Take it in sections five or six inches at a time, always making the heavy strokes in the direction of the course followed by the fecal mass. Give double the number of strokes over the sigmoid flexure (see Fig. 101), for this is the point where retention is most likely to occur and where, owing to the complex curves of the gut, the fecal matter is most firmly lodged.

By this method you will divide the entire colon into six or seven sections, and with six firm strokings over each portion and an extra six over the sigmoid section, you will have not only mechanically assisted the fecal matter in its onward course, but will have greatly stimulated all the functions of the colon.

It should be remembered that the colon at the sigmoid flexure lies much deeper than at any other portion, so that in order to reach it the roller must be quite firmly pressed down through the relaxed abdominal walls. The strokes should be made slowly, at the rate of about fifteen a minute, or four seconds for each stroke.

After going over the entire course of the colon as above described, it is well to rest a few minutes, breathing freely and deeply. Then repeat the treatment. The roller massage may be varied occasionally by using the hand instead. The hand, however, is not so well adapted for this form of massage as the roller, and when using the hands care should be taken not to release the pressure

upon the bowel with one hand until the other hand has been placed in position just beyond it. This will tend to force the fecal matter onward. It will be readily seen that for this purpose the massage roller is especially adapted for many reasons.

An important point in the treatment of constipation is regularity at stool. A certain time should be chosen, and at this time an evacuation should be expectantly solicited. It should be remembered that, as mentioned above, the act of defecation is largely a matter of muscular relaxation. So all extreme effort should be avoided. If, after a few minutes of attentive solicitation, the evacuation does not occur, the colon should be cleansed by the use of the enema reaching the sigmoid flexure.

The treatment outlined in this paper is sufficient to effect a cure in all but a very small minority of cases of constipation. Whenever the systematic application of these remedies does not effect a cure recourse should be had to a skilled physician.

## **RHEUMATISM, Articular and Muscular.**

### **CHAPTER XI.**

Rheumatism is a constitutional disorder and may be divided into two varieties, articular and muscular. Articular rheumatism is characterized by high fever, constitutional disturbance, acid sweats, certain changes in the blood (dyscrasia) and inflammation of the joints. Muscular rheumatism, or myalgia, is a painful condition of the muscles and the tissues covering them. Muscular rheumatism usually affects the larger muscles, such as those of the shoulders (omalgia), of the back (lumbago), of the neck (torticollis, "stiff neck") or of the muscles lying between the ribs (pleurodynia). The muscles of the arms, thighs or calves of the legs are also frequently affected.

The immediate cause of rheumatism is a question upon which pathologists disagree. The ultimate cause, however, is undoubtedly faulty diet, usually complicated by improper clothing, insufficient bathing, exercise or ventilation, lowered vitality, etc.

#### **THE TREATMENT OF RHEUMATISM.**

As to the treatment of rheumatism, it may be considered under two heads, constitutional and local. The general or constitutional treatment

should include attention to the diet, bathing and exercise (when possible). The local treatment consists of hot or cold applications and massage. Electricity is also sometimes useful as a relief.

The diet in rheumatism should be very simple. All animal foods, meat, cheese, milk, cream, eggs, etc., should be absolutely avoided. So should tea, coffee and all condiments and stimulants. In general, the diet should be modeled after that described in chapter VII.

#### FASTING IN ACUTE RHEUMATISM.

In severe cases of acute articular rheumatism a fast of from three to eight days has invariably resulted in complete relief. Dr. A. Casey Wood reports that out of forty cases so treated none failed of rapid and complete cure. Dr. Wood believes that rheumatism is merely a form of indigestion, and the results of this treatment in his hands, as well as in my own, go far toward proving such to be the case.

#### WATER DRINKING.

Almost invariably in my experience the onset of an acute attack of rheumatism has been marked by digestive disturbance. Fasting, or greatly reduced diet, is thus indicated. At the same time (and, in fact, at all times) the patient should drink freely of pure, cold water. At least two quarts a day (about ten tumblers) should be taken. This amount of water flushes the kidneys and bowels, accelerates the action of the skin and lungs and increases the activity of all the vital functions.

## ENEMATA.

Torpidity of the bowels is usually present in rheumatism. "Flushing of the colon" is always indicated. This should be done at least once a day, using the long, flexible tube, during the entire course of the disorder. During acute stages the flushing may be given night and morning. For a full description of a new and improved method of flushing the colon those interested are referred to Dr. Wright's valuable booklet, "The New Internal Bath."\*

## WATER TREATMENT.

As a local application in rheumatism water is important. Hot fomentations upon the abdomen are often of great value. They are applied as follows:— Have a linen cloth, which when folded into four thicknesses shall be about eight inches long by six inches in width. Dip this into hot water, lay it upon the patient's abdomen, place towels over it to prevent wetting of clothing or bedding, and leave until cool. Repeat as necessary.

The wet sheet pack is also most beneficial in these cases. This may be given as follows:—

First prepare the bed by covering the mattress with a heavy comfortable. Then put a flannel blanket over the comfortable. Have at hand a hot water bottle or a hot brick for the patient's feet and a small tub or pail of cold water for the sheet. Now wring the sheet out of the tub of water, so that it will not drip, and spread it smoothly upon the

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\*For sale by the Health-Culture Co., price 25c.



blanket on the bed. The patient, wholly undressed, is placed in the middle of the wet sheet, arms at his sides, and the sheet is wrapped smoothly and closely about the body. Over the sheet place several blankets or comfortables, tucking them closely about the patient's neck and feet. Wring the napkin out of cold water and place it upon the forehead. See that the feet are warm and the patient comfortable. Cover with flannel blanket and as many coverlets as may seem necessary. All coverings should be closely tucked about the patient's neck and feet, about which the hot brick or the hot water bottle has been placed. The time for remaining in the pack depends upon circumstances. If the patient is quiet and comfortable, especially if he goes to sleep, he may be allowed to remain several hours. If restless, uneasy or nervous he may be removed after half an hour.

The wet sheet pack if given as here directed is absolutely harmless, and is one of the most powerful eliminants and restoratives known.

The sitz bath is also another hydrotherapeutic measure of great value as an accelerant of all the vital processes. This bath is taken as follows:— Half fill a sitz bath tub with cold water. Now place the body in the tub so that the water covers it as far as the waist and the middle of the thighs. The cold sitz bath for the purpose here considered should not exceed five minutes in length. Any small wooden tub may be used in place of the sitz bath tub.



Fig. 108. Roller Treatment for Hip.

## THE TURKISH BATH.

One of the most valuable measures in rheumatism, either articular or muscular, is the Turkish bath. The cabinet bath answers every purpose. A sweat bath may be taken every day during the acute stage of the disease, except in cases where there is heart involvement.

## EXERCISE IN RHEUMATISM.

Exercise is a most important part of the treatment. How much and what exercise can be taken will depend largely upon the character and location of the disease. The breathing exercises are most valuable, and are applicable to all cases except those suffering from pleurodynia, or rheumatism of the muscles lying between the ribs. In this form of muscular rheumatism breathing is difficult and painful, but even here the breathing exercises, practiced gently, will be found of great benefit. The sufferer will get the best result by selecting from those mentioned in chapter IV.

## LOCAL APPLICATIONS IN RHEUMATISM.

Among the local applications the most important is massage, and for this purpose the massage roller is well adapted. This is especially so in muscular rheumatism because of the firm, equable pressure and the total absence of skin friction. Where the muscles of the neck are sore, stiff and painful (torticollis) the long rod roller should be applied as illustrated in Fig. 68. The first application should be very gentle, gradually increasing the pressure as



Fig. 109. Roller Treatment for Thigh.

the tissues become less sensitive. For the side of the neck the best implement is a moderate sized roller applied as shown in Fig. 47, chapter VI. Here also the massage vibrator may be conveniently applied.

#### LUMBAGO.

Where the muscles of the back are affected (lumbago) the best means of applying massage is the long rod roller. This should be used as shown in Fig. 107, making the pressure as heavy as the sensitiveness of the muscles will permit.

Where the muscles of the leg are involved, the use of the long roller, as shown in Figures 88 and 89, chapter VII., will be found most convenient. The massage vibrator may also be used here.

Fig. 108 shows the method of using the small roller in muscular rheumatism of the leg. Fig. 109 illustrates the proper application of the long roller when the muscles of the back of the leg are affected. Fig. 110 shows application to the muscles of the lower leg and ankle.

#### PLEURODYNIA.

In pleurodynia, or rheumatism of the muscular structures of the chest and lying between the ribs, massage with a medium sized roller, up and down and from side to side across the chest, will give best results. (See Fig. 52, chapter VI.).

#### OMALGIA.

When the muscles of the shoulder are the seat of pain and soreness (omalgia), either the long rod



Fig. 110. Roller Treatment for Legs.

roller may be used, somewhat as shown in Figure 69 chapter VII., or one of the medium size rollers held in the opposite hand. This is one of the few regions of the body which is awkward to reach with the roller, and here the massage may be applied by another person. Ordinarily, however, it is better for the patient, unless extremely weak, to massage himself, as he then gets the benefit of both the massage and the exercise.

In applying roller massage for muscular rheumatism the stroke should be large enough to cover the entire region affected, and, after the first few strokes, should be applied with all the force that can be borne. One of the greatest advantages of self-massage with the roller is that the patient can adapt the force of the pressure so as to produce the best effect in the shortest time. Ten minutes' massage repeated from three to eight times daily will do more to relieve an attack of muscular rheumatism than any other local treatment known to me.

#### ARTICULAR RHEUMATISM.

Here we have quite another condition, although occasionally we find muscular and articular rheumatism combined. In articular rheumatism the large joints are affected and often become so exquisitely sensitive and painful that the slightest movement of the joint, pressure of bed clothes, jarring of chair or bed, or the lightest touch produces excruciating pain.

Under these conditions massage of any kind at

the affected point is plainly out of the question. In these cases roller massage applied between the affected joint and the heart, making the strokes from the affected part and in the direction of the heart, will inevitably give relief by increasing the return flow of the blood stream, and so diverting the excess of blood from the point of congestion.

As soon as the inflammation has subsided sufficiently the patient should, if possible, apply gentle massage to the joint itself, either with hand or roller. This may have the effect of increasing the tenderness at first, but the ultimate result will be to improve the nutrition of that region, carrying away the effete deposit and bringing fresh blood to the part.

In roller massage we have a local treatment for rheumatism which is more effective than any other form of manipulation. Used as an auxiliary to the general treatment indicated in the earlier part of this chapter, it cannot fail to produce curative results.

# NEURALGIA.

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## CHAPTER XII.

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The term neuralgia is taken from two Greek words, and mean "nerve pain." This condition may be defined as a paroxysmal pain along the course of a nerve. Neuralgia may occur in almost any of the nerves, and is usually named after the nerves affected. Thus neuralgia of the face, that is, of the trigeminal nerve, is called trigeminal neuralgia or "tic dououreux." Where the intercostal nerves (the nerves lying between the ribs) are affected it is called intercostal neuralgia. Neuralgia of the great sciatic nerve, lying along the back of the leg, from the buttocks to the knee, is called sciatica. Then there are also the neuralgias of other nerve areas, variously known as cervico-bronchial, cervico-dorsal, phrenic, lumbo-abdominal, sacral and visceral neuralgia. Various other names are given to neuralgia of other regions. It should be borne in mind, however, that, whatever the name, neuralgia is always the same condition, and simply means "nerve pain."

### SYMPTOMS OF NEURALGIA.

The most important symptom is pain. This may last for a few moments or for several days. It may be simply a dull ache or it may be a pain so severe



Fig 115. For Facial Neuralgia.

and lasting as to utterly exhaust the patient's strength. There is usually extreme sensitiveness along the course of the involved nerve trunk. There may also occur numbness, temporary loss of sensation and various constitutional disturbances, such as flushing, coldness of the extremities, vomiting, &c. Where these symptoms occur they may be regarded rather as accompanying conditions, due to a common cause, than as symptoms due to the neuralgia.

#### THE CAUSE OF NEURALGIA.

In a general way the immediate cause of neuralgia is defective nutrition of the nerves. As one pathologist has said, "Neuralgia is the cry of a starved nerve for healthy blood." It is usually accompanied by derangement of the digestion. Anemia, and chlorosis are frequent causes. Of course they in themselves are simply indications of malnutrition.

Neuralgia may also occur from traumatism, that is, external injury, or from pressure of a tumor or of some misplaced bone or ligament upon the nerve trunk.

The underlying causes of neuralgia (except when due to injury) are faulty habits as to diet, clothing, bathing, &c. To one of such faulty habits slight exposure or overexertion, a "cold," an attack of "malaria" or an extra heavy meal may bring on an attack. The excessive use of tea, coffee or tobacco is frequently a cause of neuralgia.

#### TREATMENT OF NEURALGIA.

By those physicians using drug medication neu-



Fig. 116. For Neuralgia of Intercostal Nerves.

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#### TREATMENT OF NEURALGIA.

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Fig. 116. For Neuralgia of Intercostal Nerves.

ralgia is considered a most intractable disorder. They have prescribed for it an immense variety of medicines. Morphine, belladonna, hyocyanius, atropin, opium and many other powerful anodynes, also antipyrin and other coal tar heart depressants have been used. Acupuncture, which consists of the insertion of a number of small needles into the skin, has been for years a favorite treatment for sciatica. The Paquelin cautery is also much used. This is applied by rapidly passing over the skin of the affected part a hollow platinum tube, which is heated to a white heat. Various local applications are also in use. Among these may be mentioned menthol, veratrin, aconite, belladonna and oleate of morphine. Blisters, sinapisms, camphor and capsicum have also been tried. Hypodermic medication has been employed, introducing into the circulation morphine, chloroform, osmic acid, cocaine and carbolic acid. Freezing the part also has been practised. Lastly surgery is resorted to. The nerve affected has been cut out bodily. Sometimes the nerve is laid bare and freely stretched.

#### DRUG MEDICATION USELESS.

In a word, all this wide variety of treatment may be said to have been unavailing. Sometimes a heavy narcotic dose, taken either through the mouth or hypodermically, has given temporary relief, but always at the expense of marked constitutional disturbance, headache, vertigo, exhaustion, &c. Sometimes acupuncture, the Paquelin cautery or other drastic measure so affects the patient's mind as to



Fig. 117. For Shoulder

each day. The effect of this will be to cleanse and flush all the internal organs, to greatly increase the elimination from the skin, the bowels and the kidneys, and so to carry off the impurities, the retention of which is probably the real cause of the disorder.

#### EXERCISE.

Certain exercises are of great value in neuralgia. Best of all, perhaps, is free exercise in the open air. Tennis, walking, riding and golf are all good. Among the most valuable special exercises are the stretching, breathing and relaxing exercises described in chapter IV. The patient should select five or six of these and devote to them from five to ten minutes two or three times a day, according to opportunity and strength.

#### BATHING.

The daily bath, warm or tepid, is essential to the healthy condition of the skin, without which its function is impaired. The Turkish or sweat bath is also indicated once, twice or three times a week, according to the needs and condition of the patient. Hot fomentations during a paroxysm frequently afford relief. The fomentation is simply the application of a cloth wrung out of hot water. Sometimes, however, cold applications produce a better effect. The cold pack is sometimes of great service.

#### MASSAGE.

In neuralgia massage is of first importance, and here again for many reasons roller massage is pref-



Fig. 119. For Crural Neuralgia.

erable. For facial neuralgia ("tic douloureux") the small facial roller should be used. This should be applied to the affected part, rolling at first gently, and then, as the sensitiveness becomes less marked, more firmly, up and down. (See Fig. 115.) Ten or fifteen minutes' application of the small roller as herein suggested will frequently relieve a severe attack of facial neuralgia.

In neuralgia of the intercostal nerves it is necessary first to locate the nerve which is the seat of the pain. For this purpose explore with the finger tips, find the point of sensitiveness and follow this along its course between the ribs. Then apply the medium sized roller, passing it at first gently, then more firmly, over the section of the nerve which is the seat of the pain and tenderness. (See Fig. 116.)

Neuralgia of the neck or of the shoulder can be most conveniently massaged by a nurse or attendant. Take medium sized roller in right hand and pass gently up and down over the affected part. Gradually apply more and more pressure as the patient grows more tolerant. (See Fig. 117.) Ten minutes' rolling three or four times a day in connection with the general treatment described is undoubtedly the best treatment yet devised for this form of neuralgia. For this situation the massage vibrator is also useful and more convenient of application than the roller.

Neuralgia of the spinal column, also sacral and coccygeal neuralgia, are best treated by an attendant, although ~~where~~ where an attendant is lacking the



Fig. 120.



Fig. 121.



Fig. 122.



Fig. 123.



Fig. 124.



Fig. 125.



Fig. 126.



Fig. 127.



Fig. 128.

massage vibrator may be applied to the spine, as shown in Figs. 120, 121, 122, 123, 124. Even in these, however, the sufferer, if sufficiently robust, may also use the long double handed roller, as shown in Fig. 107.

In crural neuralgia the medium sized roller is to be applied to the affected part, with either hand convenient. Here also the massage vibrator may be used with good results, as shown in Figs 93, 94, 95, 96 and 97. The tissue of the legs are more yielding than elsewhere, and greater pressure may be used. (See Fig. 119.)

In all these various forms of neuralgia the application of the roller and the massage vibrator will be found the most convenient and effective method of massage. In no class of disorders are the advantages of this form of mechanical massage more marked.

# GOUT.

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## CHAPTER XIII

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Gout may be defined as a constitutional disorder, characterized by an excess of uric acid and other urates in the fluids of the body. Influences predisposing to gout are hereditary tendency, male sex, advanced life, lack of exercise, indoor living, last (and principally), dietetic errors—food excessive in quantity, variety or richness, over use of alcoholic liquors, smoking, &c.

### SYMPTOMS OF GOUT.

There are three varieties of gout, acute, chronic and sub-acute, or irregular. The onset of an attack is generally accompanied by symptoms of indigestion.

The point of attack is generally one of the small joints, as of the hand or foot. The first joint of the great toe is a frequent point of deposits. There is great pain, with redness and swelling of the joint and excessive tenderness. There is usually rise of temperature and disturbance of the heart's action. These general symptoms are often attributed to the gout. This is, in all probability, erroneous. The evidence of the latest researches would seem to prove that all these symptoms—indigestion, headache, dizziness, fever, heart irregularity, and the

gout itself—are due to one underlying cause—retention of poisonous matters.

Gout may be distinguished from rheumatism by the fact that in gout it is generally the small joints that are affected, while in rheumatism it is the larger joints, knee, elbow, shoulder. In gout the pain is more acute and there is more swelling and redness than in rheumatism. The fever of gout is less high than in rheumatism, and the acid sweats so characteristic of rheumatism are absent in gout. Notwithstanding these points of difference, however, there is much evidence to show that the origin of the two disorders is almost the same, and that is the deposit in the tissues of excretitious matter. There is much variation in the symptoms in each case. While gout is not itself a fatal disease, it is apt in the later stages to be complicated with other derangements (frequently nephritis or inflammation of the kidneys) which may cause death. Chronic gout occasions deformity of the joints.

#### CAUSES OF GOUT.

Various causes have been assigned by pathologists as the immediate cause of gout. One authority attributes it to increased acidity of the blood, rendering it unable to dissolve and carry out of the system certain poisons; another to failure of the kidneys; another to digestive disturbance. Probably each is wrong and all are right. Gout is merely an indication of the introduction or the formation within the system of certain poisonous matters.



Showing Application of Roller Mascaging Small Joints of  
Foot in Gout.

Owing to the large quantity of those matters and the lowered vitality of the organism, they are not promptly thrown off. The treatment prescribed in accordance with this view has given brilliant results. Drug medication in this disorder is worse than useless.

#### TREATMENT OF GOUT.

The treatment of gout may be considered under two divisions, the constitutional or general treatment, and local treatment. The latter is mainly with the object of relieving an attack; the former in order to cure the disorder.

The general treatment embodies regulation of the diet, certain baths and such exercise as the condition of the patient will permit. The local treatment comprises hot and cold applications and massage.

#### DIET IN GOUT.

In the treatment of gout the diet is of the utmost importance. The patient should be made to understand that gout is practically merely a symptom of indigestion, and the diet should be regulated accordingly. All meats, fish, eggs, cream, cheese and other animal foods should be disallowed. Tea, coffee, tobacco and all condiments should be avoided. Alcoholic beverages of all kinds should be strictly tabooed. Diet should be light and should consist of cooked vegetables, cereals, salads and fruits.

#### FASTING IN GOUT.

I have never seen a case of gout (or rheumatism) which could not be relieved by a fast of from two to six days; oftentimes the relief, even after twenty-



For Gout of the Finger Joints.

four hours abstinence from food is such that thereafter the patient is a convert to the fasting cure.

#### BATHING.

A general bath every day is essential. The Turkish bath is one of the most effective of all the known measures for the cure of gout. A Turkish bath may be taken every day during the acute stages of the disorder, except where there is extreme weakness or heart difficulty.

#### EXERCISE IN THE TREATMENT OF GOUT.

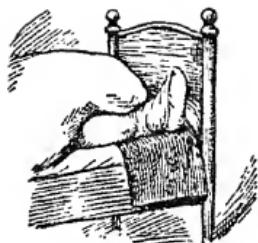
The prescription of exercise in gout will depend upon the general strength and endurance of the patient. No definite instructions can be made to fit every case. In general, however, it may be stated that the more exercise taken short of actual fatigue the better. Almost any of the stretching, breathing or relaxing exercises described elsewhere will be beneficial.

#### LOCAL TREATMENT IN GOUT.

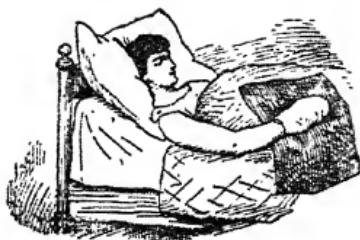
Cold applications, made by laying on the affected part cloths freshly wrung out of cold water, will often relieve the pain of an attack. Occasionally heat applied in the same manner is a relief. Immersion of the joint in cold water is often beneficial. These measures, however, while they may afford immediate relief, have little or no effect upon the general cause of the disorder.

#### ROLLER MASSAGE.

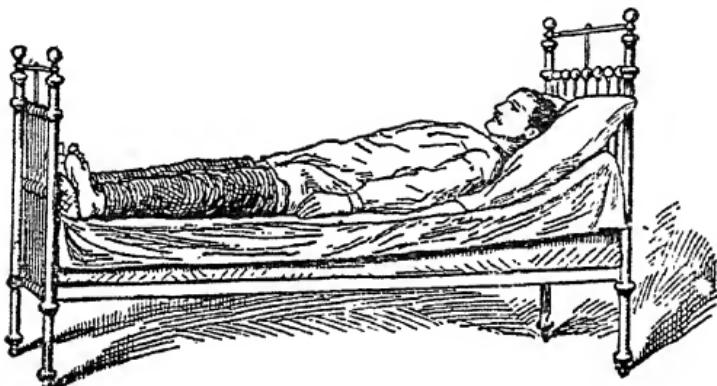
Although the extreme sensitiveness of the joint



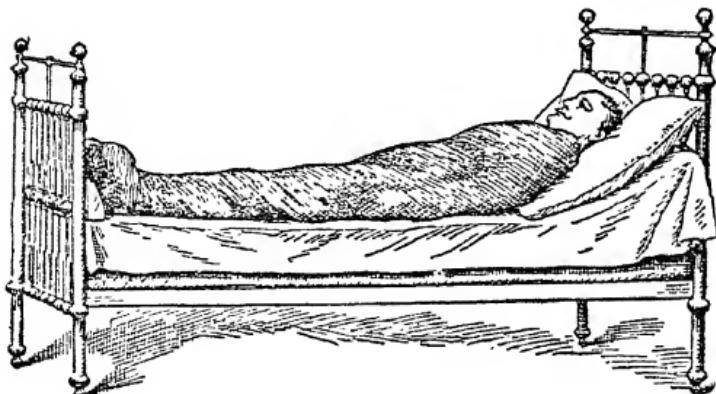
Foot Pack.



Hand Pack.



The Leg Pack.



The Whole Pack.

during an acute attack renders the merest touch painful, yet even at such time the gentle application of the massage roller will accelerate absorption and afford relief. As an adjunct to other treatment roller massage of the affected joint is most valuable in toning the relaxed tissues, in reducing the oedematous (watery) swelling, in accelerating the circulation, and therefore, in hastening the cure.

The illustrations show the application of the roller to the hand and to the foot, the joints of which are the favorite situations for the deposit of the matter producing this painful condition.

## **Sprains, Synovitis, Varicose Veins and Swollen Joints.**

### **CHAPTER XIV.**

A sprain is the result of a movement of the joint beyond its natural limits—a movement which carried a little farther would result in a dislocation. There is thus a stretching of the ligaments (the structures which bind the bones together at the joints. In severe cases there is a rupture of these structures with laceration of blood vessels, and sometimes of nerves. Hemorrhage into the joint and into the surrounding tissues is always present. Often one or more of the ligaments are torn away from their point of insertion into the bone, sometimes tearing away a small piece of the bone itself. The injury done to the tissues in a sprain is often much greater than that of a simple fracture.

#### **SYMPTOMS OF A SPRAIN.**

The symptoms of a sprain are pain, soreness, swelling, stiffness and escape of blood and serum into the tissues about the joint. The pain is often very severe, sometimes so much so as to cause insensibility. The swelling varies much. Sometimes the swelling of a severe sprain is very slight. Again slight sprain may produce marked enlargement. The joints most subject to sprain are those of the ankle, knee, wrist and small joints of the hand.

## TREATMENT OF SPRAINS.

The first point in the treatment is absolute **rest** of the joint. Elevation and suspension of the affected part will often relieve pain at once. Moderate compression of the joint by an elastic bandage is always indicated, except where there is abrasion or injury to the skin. In severe sprains the joint may be placed in a splint to secure immobilization. This, however, is seldom necessary, and should be used with caution, since there is some danger of rendering the joint permanently stiff.

Cold applications in the form of douches or compresses are most valuable. Occasionally, where the pain is severe, application of hot water affords relief. A recent and most successful method of treating sprains is to place the affected part in an apparatus similar to a bath cabinet, where it is subjected to a high degree of temperature.

After the more acute symptoms of pain, swelling, &c., have subsided, attention should be given to the restoration of the normal mobility of the joint, as otherwise permanent stiffening may result. This may be accomplished by passive movements.

## MASSAGE FOR SPRAINS.

Massage treatment in sprains is directed to two purposes, first the reduction of the pain, swelling and stiffness through hastening the reabsorption of the results of the injury in and about the joint; and, second, the prevention of permanent stiffness of the joint.



Applying the Calf Pack for Varicose Veins.

## ROLLER MASSAGE.

The massage roller is of great value in this condition. Whenever possible the sufferer should apply the massage himself, since he, of all operators, is the one best able to apply just the proper degree of force to the movements.

For knee, ankle or wrist a medium sized roller is best. The first strokings should be very gentle. Gradually, however, with repeated movements the tissues become less sensitive, until in a few minutes they will tolerate quite a heavy pressure. The heavier strokes should always be made in the direction of the body. Ten or fifteen minutes' careful rolling three or four times a day is a most effective treatment for these injuries.

In sprains of the knee the massage vibrator is conveniently applied, as shown in Figs. 95, 96, 97, 98, 127 and 128. This instrument may also be used for the ankle and foot. (See Figs. 125 and 126.)

One peculiar advantage of the massage roller in sprains is that it does not necessitate the removal of the bandages. This also applies to the massage vibrator.

## SYNOVITIS.

Synovitis, or inflammation of the lining membrane of the joints, is the most common of all diseases of the joints. The joints most frequently affected are the knee, elbow and ankle. Less often the disease is found in the hip, shoulder and the small joints of the hands and feet. There are a



FOR SWOLLEN GLANDS.

number of varieties of synovitis. The same treatment, however, is indicated for all.

#### TREATMENT.

Absolute rest, elevation and suspension of the affected joint are imperative. Hot and cold applications in the form of compresses or douches are of value. Diet of plain, simple food, abstinence from condiments and stimulants and free water drinking give best conditions for recovery. The patient should take such exercise as his condition permits.

#### MASSAGE IN SYNOVITIS.

The same directions given for the treatment of sprains apply to synovitis. The roller is best applied by the patient, at first very gently, with gradually increasing force. The heavier strokings should be made in the direction of the body.

For synovitis of the knee and ankle the massage vibrator is also useful.

#### VARICOSE VEINS.

A vein is said to be varicose when it is permanently enlarged and when its coats have undergone certain degenerative changes. The most frequent situations for varicose veins are the lower extremity, the rectum (hemorrhoids, "piles") and the testicles (varicocele).

The causes of varicose veins are numerous. Among others may be mentioned lowered vital resistance from any cause, overfeeding, insufficient nourishment, pressure upon the veins (as of gravid uterus or of a tumor), pressure of retained fecal matters, prolonged standing, severe muscular ex-

ertion whereby the blood is forced under great pressure into the veins near the surface of the body. The symptoms are enlargement of the vein, with pain and soreness.

#### TREATMENT OF VARICOSE VEINS.

All obstacles to circulation should be removed. Tight band garters are specially injurious, and are often directly accountable for varicose veins of the lower leg. Where the varicose veins occur as a symptom of pregnancy the patient will find the recumbent breathing and relaxing exercises specially beneficial.

Rest and elevation of the affected limb are always indicated. Cold applications are also of great value. These may be applied either by compress to the leg, the rectum or the scrotum, by douch or by immersion of the affected part. The cold sitz bath of five minutes' duration is especially valuable in hemorrhoids and varicocele.

Attention to general health is important, simple plain food, free, gentle exercise, according to conditions, liberal water drinking, ventilation, special care of the bowels, avoidance of overexertion and of worry—all these are important.

#### MASSAGE IN VARICOSE VEINS.

Where the veins of the lower leg are affected roller massage is most beneficial. One of the medium sized rollers should be employed and the strokes should be made slowly and firmly in the direction of the return blood stream, that is, toward the body. It is important that there should

be no strokings made downward on the leg. All the rollings should be made upward, so as to assist the weakened vein to return its contents to the heart.

#### SWOLLEN GLANDS.

Where the glands of the neck or groin are enlarged careful massage with the roller will be found a most satisfactory treatment. Where the enlargement is on the side of the neck use a medium sized roller, lift the head and roll with moderate pressure up and down and from side to side over the affected part. The same directions apply to the treatment of swollen glands elsewhere.

It should be understood that the removal of these enlarged glands by a surgical operation is seldom necessary. Usually a course of careful hygienic treatment covering diet, baths and exercise with systematic massage is sufficient to cause disappearance of the swelling.

## **ALOPECIA OR BALDNESS.**

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### **CHAPTER XV.**

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Although part of the animal body, the hair is in all essential respects a vegetable growth. Like a vegetable growth it draws its sustenance from the medium in which its roots are fixed. In fact, hair has been transplanted from one part of the body to another part, where it has taken root and grown.

To an extent, the hair (and the nails, which are biologically and chemically identical with the hair), have a life which is, to a large extent, independent of the general life. The hair does not die with the death of the person, but frequently grows long after death. While making dissections of the face and head I have many times shaved these parts and not infrequently I have seen the hair grow out to the length of a quarter of an inch before dissection is finished. There are on record well authenticated cases where, on exhuming a body which had been interred for many years, the hair has been found to have grown to an enormous length. One thing is certain:—The growth of the hair does not stop with the death of the body. This means that to an extent it has a life which is independent of the general life of the body.

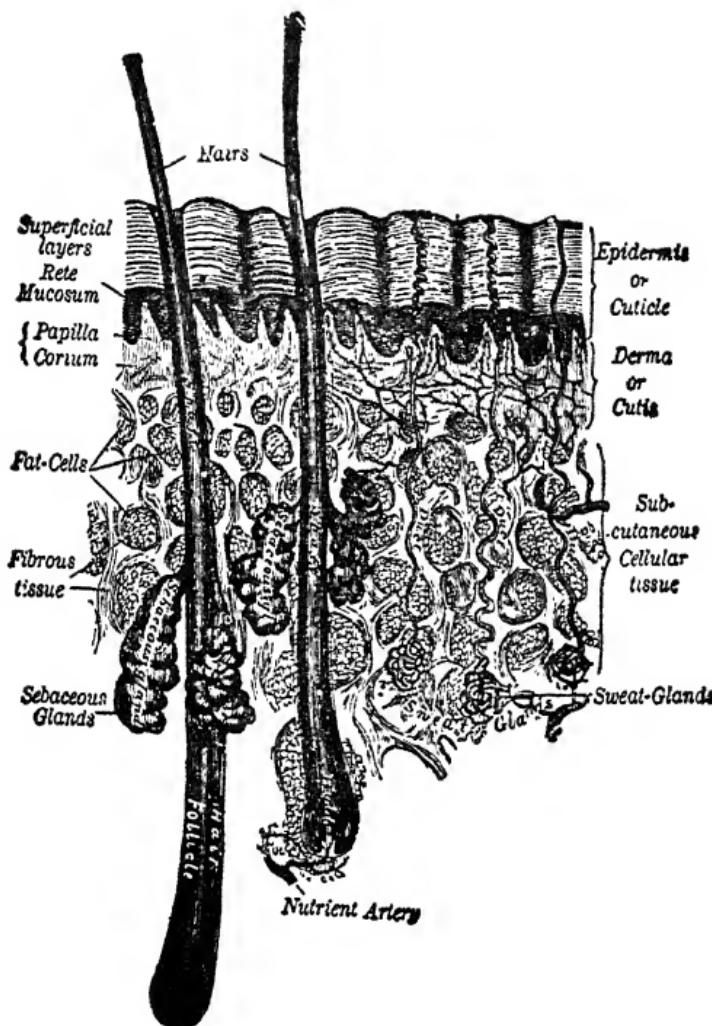
This fact, aside from its interest as a curious feature of life, has an important bearing upon the hy-

giene of the hair—upon the prevention and the cure of premature grayness (I am inclined to think that grayness is always premature), and upon alopecia or baldness.

Causes of Baldness.—In considering the causes of baldness it is important to bear in mind that the hair in its development and in its method of sustaining its life is practically a vegetable growth. Baldness has been the subject of an immense amount of theorizing and quackery. Many causes have been assigned for it and many absurd measures and useless, in fact, often injurious, nostrums have been devised for its treatment. Space will not permit of a discussion of those theories, amusing though they are. It may be remarked, however, that even here the “microbe scientist” has had his inning, and has gravely informed us that alopecia is the result of the depredations of an enterprising little vegetable with an awe inspiring Latin name.

There are probably two principal causes of baldness. The first and more common is simply the inability of the hair stalk to draw from its soil the skin, sufficient nourishment for its sustenance. Remembering that the hair is practically a vegetable growth, not unlike an onion—this is quite intelligible—anything that tends to lower the general vitality, rendering the vital fluids less rich in nutrient matters, will affect the nutrition of the hair in common with that of other tissues.

Thus acute illness, in which all the vital forces are

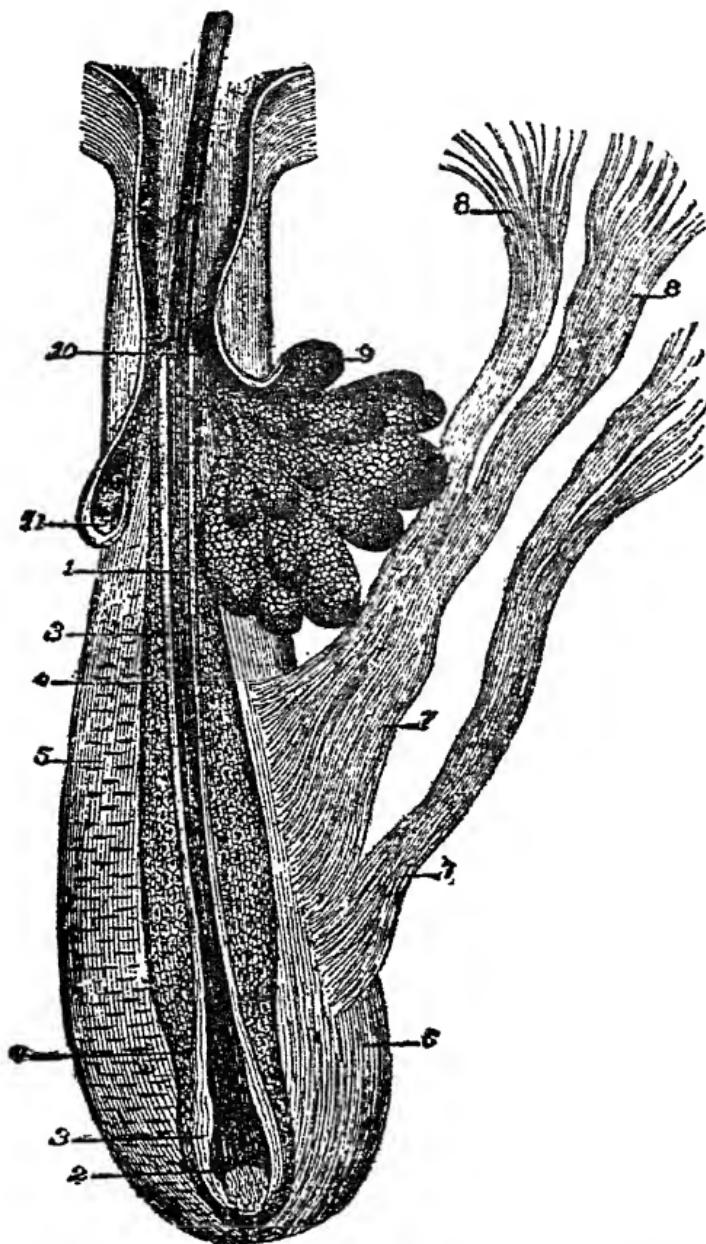


Anatomy of the Skin A Magnified Section, Showing the Hair and How it is Nourished.

massed to combat the effects of retained poisons made by the body and of those other poisons inserted into the body by the intelligent physician, this causes such a diversion of energy that the hair is deprived of its nourishment and dies like grass in a drought. The same effect is produced by anxiety or by any other debilitating influence. Overfeeding, overwork, confinement, anxiety, lack of exercise—all these indirectly tend to baldness through lowering the general vitality.

#### THE TIGHT HAT BAND.

Probably the most common cause of baldness is the wearing of a tight hat band. The arteries supplying the scalp with blood pass up the sides and back of the head. Now, a tight hat band pressing upon these minute tubes cuts off a major portion of the blood supply from which the hair draws its nourishment, and baldness is the natural result. This is undoubtedly one reason why the proportion of baldness is so much greater among men than among women. Another cause of baldness is inactivity of the skin of the scalp. Movement is essential to life. The scalp of the average man, drawn tightly over the skull, is seldom disturbed except for brief brushing three or four times a day. Thus, the circulating blood being drawn constantly to stomach, limb, brain and elsewhere, circulates less freely than it should in the skin of the scalp, and the hair is deprived of needed nourishment. The men most subject to baldness are those whose hair is usually carefully and smoothly dressed and brushed. On the other hand,



Hair Follicle, Hair and Glands Greatly Magnified.

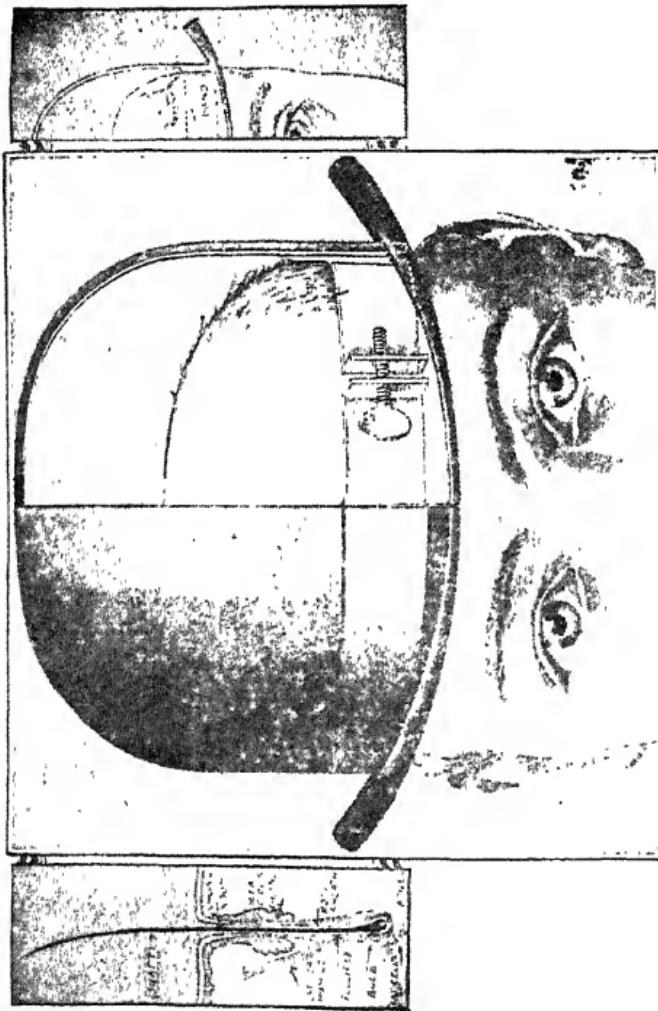
men who wear the hair rather long, and who habitually touch and manipulate it with the hands are seldom bald.

There is little doubt in my mind that the fact that the hair of the head falls out more often than the hair upon the face is owing to the greater activity of the skin and tissues of the face, which keeps the roots of the beard and mustache well nourished. This activity of the skin about the hair follicles is, of course, increased by the frequent manipulation to which beard and mustache are usually subjected.

The use of hair dyes, "hair washes," &c., probably acts to produce baldness, through injury to the hair shaft itself. Uncleanliness necessarily has the same effect. Another frequent cause of baldness is that condition in which the skin, through lack of nourishment, becomes so relaxed as to allow the hair bulb itself to fall out. This, as may be readily understood, is frequently complicated with other causes mentioned.

#### TREATMENT OF BALDNESS.

The rational treatment of baldness may be said to bear upon one point—the re-establishment of such nutrition in the skin of the scalp as will insure its healthful condition and provide nutriment for the starving hair stalks. The methods by which this condition may be encouraged are many. Among the general measures to be considered are diet, bathing, ventilation and exercise. The mental state has a peculiarly intimate relation to the condition of the hair. A chapter could be filled with instances of



Showing how a tight hat prevents the circulation of the blood through the scalp and cuts off the nourishment for the hair.

this, but space will not permit. It is enough to state that mental disquietude, worry, anxiety, anger, ~~fear~~, grief or remorse so alter the secretions as to produce both baldness and grayness, sometimes in a surprisingly short time.

Among the local methods the most important measures are shampooing, brushing, manipulation with the hands (dry shampooing), pulling and massage.

The shampoo may be given two, three or four times a week. A lather made with a good soap and warm water should be well rubbed in with the hands and a soft brush. This should be followed by a thorough rinsing with warm water and then with cold. Finally the hair should be well dried, first with a towel and lastly with a brush and the hands. Brushing the hair and manipulation (dry shampooing) with the finger tips are both valuable measures for restoring tone to the skin of the scalp and to the hair follicles.

In the treatment of baldness the massage roller is of special value. The elastic band of rubber, by which the wheels are surrounded protects the skin from injury and allows the application of a firm continuous pressure all over the scalp.

Women or men who wear the hair rather long may place a towel or large handkerchief over the head to prevent the long hairs from being caught in the rollers. Five or ten minutes of vigorous rolling twice a day will often produce surprising results in a comparatively short time.



Scalp Massage.

A well known authority says of the massage treatment:—"It promotes hair growth, excites the action of the hair cells, prevents absorption of the fatty and muscular layers forming the scalp, arrests atrophy of the hair bulbs, and by increasing the circulation prevents the hair from turning gray."

Pulling the hair has the effect of slightly raising the skin of the scalp away from the skull, thus increasing the circulation. It is also useful in removing the dead and dying hair stalks, the retention of which in the follicles prevents the growth of a new stalk.

## **LUNG TROUBLES.**

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### **CHAPTER XVI.**

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#### **BREATHING AND HEALTH.**

In an ancient symbol the vital functions are represented by a snake with its tail in its mouth, indicating that the process of life is an unbroken cycle, each function depending upon the others. Modern science confirms this view, and proves that to interfere with one function is to embarrass all—to invigorate one is to accelerate all.

And yet, while no one function can be regarded as beginning the cycle of physiological activities, it would seem that, for many reasons, respiration should be considered the first.

The importance of the breathing has been recognized in all ages. In many religious systems the breathing occupies first place as a means of training in self control and abstraction and as a ceremonial. In the book of Genesis the Jahvist represents God as breathing into insensate man the breath of life, "and man became a living soul." In the Hebrew language the aspirate Ha is one of the names of deity; in fact, a part of the name of the Hebrew God, Jehovah. It is related that when God changed the names of Abram and Sarai as a mark of His favor He added to those names the sacred sound

Ha, making the names Abraham and Sarah. Among the Hindoos prana, or the breath, is the principal primary method of attaining concentration and poise. The sacred word Om (pronounced ah-oo-m) is simply a breathing exercise, inducing a peculiarly harmonious action of the vocal and respiratory muscles. The long, deep breath (prana nyama) of the Hindoo mystics requires exquisite muscular control, and so develops self command and concentration.

Among certain savage tribes the salutation of respect consists in exhaling gently through the open mouth upon the forehead of the person saluted. In many languages the words of God, for life and for breath, are identical or show a common origin.

So, among the more intelligent peoples of all ages has the importance of the breathing function been recognized. Modern civilization alone ignores it. Modern civilization alone impedes and strangles this most important function by corsets and belts, by tight neckwear and coat collars, by breathing poisonous air and by sedentary and indolent indoor lives.

The breath is the life. Without food a man may live for forty, fifty, sixty days or even longer. Without fluids he can live for several days. Without air he will die in a few minutes. Of all essentials to life the oxygen of the air is the most important. This oxygen is obtained by breathing. The more we breathe, the more oxygen; the more oxygen, the more life.

The lungs consist of a mass of small openings, or lobules, infinitely numerous, into which the air is drawn at every breath. The number of these ultimate lobules is estimated to be 600,000,000. The extent of the surface through which the inhaled oxygen is absorbed is about thirteen hundred square feet, approximately equal to the floor of a room thirty-five feet square. Through this surface the lungs daily excrete about 1,300 grains, or over two pounds (considerably more than a fluid quart) of poisonous matters. In fact, one-third of all the waste and poisonous matter resulting from the change of body tissue is excreted through the lungs.

The blood circulates through the body, collecting as it goes the poisons formed by the breaking down of tissue. These poisonous matters the blood carries to the lungs, where they are given up, and exhaled with the breath in the form of carbonic acid gas and other poisonous vapors. After throwing off its accumulation of poisonous matters the blood absorbs all the oxygen obtainable in the lungs. This oxygen is then carried by the blood to the tissues for their upbuilding. Three times in every minute the blood makes a complete circuit, carrying oxygen to the tissues and returning to the lungs laden with the waste and poisonous matters resulting from tissue waste.

Full use of the lungs always means strength. Throughout the animal creation—from the mouse, which breathes 150 times a minute, to the elephant,

which breathes six—one rule holds good, the stronger the animal the more slowly and deeply it breathes. In proportion to its bulk an ant is twenty times stronger than an ox and consumes eight times as much oxygen.

The same rule applies to mankind. The great men are always great breathers. The "men at the top" are always the big chested ones. As a rule of general application, it may be stated that the capacity of the chest is an index of the mental and physical powers of the individual. The greatest men of all times and countries—the Napoleons, the Martin Luthers, the Cromwells, the Daniel Websters, the Gladstones—all were deepbreasted, full breathing men. The great statesman, the great general, the great preacher, the great prize fighter—Bismarck, Wellington, Phillips Brooks, John L. Sullivan—all have this in common, the fully developed, fully acting lung, the consequent vitality, and the power which comes from vitality.

Very few people breathe properly. In an examination of several thousand cases the writer found less than one per cent of men and women who made proper use of their lungs. It may be noted in passing that each of those found with normal respiration was remarkable for power in some particular line. Two of the men and two of the women found to be normal are famous vocalists. Two of the men were successful business men, self raised from early poverty. One of the men was a burly negro, possessed of the figure and the strength of a

Hercules. Another of the men is the greatest prize fighter that this country has produced.

The results of normal use of the lungs may be stated as follows:—

1. Increased nutrition.
2. Increased elimination.
3. Healthy condition of the lungs themselves, and of their important covering, the mucous membrane; also the mucous membrane lining the bronchial tubes, throat, mouth and naso-pharynx.
4. Increase in peristalsis of stomach and intestines, resulting in improved digestion, assimilation and stimulation of the other vital functions.
5. Restoration of the normal lines of the figure, the back straight, the chest high, broad and deep.
6. Immense increase in energy and endurance, due to improved elimination and nutrition.
7. Freedom from impurities of the skin; clear, bright eyes. This is due to the increased elimination of waste matters, which, when retained, often appear as "pimples," "blackheads," &c.
8. Gain in weight, filling out of hollow cheeks, neck and shoulders, due to improved nutrition.
9. Lastly, and to many most important of all, is the value of breathing and breathing exercises as a means of reaching higher mental and spiritual development. The breathing is, of all the vital functions, the one most under our control. The practice of the breathing as a mental exercise leads to a degree of self-control, self-realization and self-

expression which would seem miraculous to the uninformed. Psychic breathing is one of the points of departure between the merely mental and the psychic phases of cosmic activity.

The most important result of full breathing, as we have already seen, is increased oxygenation of the blood and the augmented elimination of the waste matters carried by the blood to the lungs. In addition to these the mechanical action of full breathing accelerates the peristaltic movements of the stomach and intestines and thereby helps digestion, assimilation and all the other vital functions. The action of the heart, stomach, liver, kidneys and of most other organs is beyond the direct control of the individual. The breathing, however, although usually unconscious, being presided over by the sympathetic nervous system, may at any moment be made voluntary. Of all the vital functions it is the one most largely under conscious control—the one most readily trained.

The conditions of proper breathing are few and simple. The first is proper carriage of the body and the second is freedom from tight encircling bands, such as corsets, belts, tight collars or waistcoats. The usual teaching is that there are three methods of taking in the breath—the clavicular, the lateral and the abdominal. In the clavicular breath the abdomen is held immovable and the inhaled air is allowed to raise and expand the ribs at the upper part of the chest. In lateral breathing the ribs at the side of the chest are expanded by the inhaled

air, while the abdominal breath is taken by holding chest immovable and allowing diaphragm to move downward and abdominal walls outward.

It is usually stated that one of these breathing efforts is the correct one, and that the others are incorrect; also, that the normal respiration for women is the clavicular and for men the abdominal. Such teaching could result only from a superficial study of abnormal models. In the normal breath the entire thorax, chest, abdomen, sides and back expand with every respiration. Such expansion, however, is possible only where the body is properly carried and is unconstricted.

Normal breathing is rare—very rare. Why is this so? In the first place, it is so only among civilized men and women, whose clothing and whose habits render the normal breathing movements impossible. In natural breathing the spine is straight, the body is held erect and the entire trunk (chest, back and abdominal walls) expands with the inhalation and contracts when the air is expelled.

With ordinary clothing, however, this action is impossible. In the case of a man, the wearing of a tight collar on shirt or coat and the tightly buttoned waistcoat draws the head forward, contracts and depresses the chest and rounds out the back. The chest in this position is unable to expand and only the lower or "abdominal" breath can be taken. Among women, on the other hand, the wearing of tight belts, corsets and skirt bands about the waist

renders expansion in that region impossible. Providentially, however, the dressmakers allow some little freedom of the clothing over the chest, and the unfortunate woman (complacent martyr to the modern Moloch) can breathe only by a fatiguing and unsightly expansion of the upper ribs, known as the "clavicular" breath.

Breathing is the most important act of our lives. To one who realizes this—who appreciates that proper breathing means health and power—the questions come:—"Can I learn to breathe normally?" "And how?"

Normal breathing can be learned by proper methods. The great difficulty is that the unused muscles are weakened by disuse and perhaps by pressure (as when a corset or tight belt has been worn), and sometimes these muscles are slow in acquiring normal development. The first point in learning to use the lungs properly in breathing is to carry the body correctly in standing and walking. Then, and only then, can the chest and waist expand.

#### HOW TO ENLARGE THE CHEST.

Of all the physical indications of power, the large chest is, perhaps, the most unfailing. A large chest means strength, vitality, energy—power, either mental or physical; usually both. The dominant men of all times and countries have, so far as I know, without exception been men with square shoulders and large chests.



Fig. 127.

I do not mean to imply that there have not been a few brilliant men, a few great men perhaps, who have been of average or less than average development. I believe, however, that there has been no instance of a dominating individual who has not been characterized by large lungs.

The average amount of air taken in at a breath is estimated at from twenty to thirty cubic inches. To increase this ten cubic inches means to take in at each inspiration twenty-five per cent more of oxygen and to excrete with each exhalation a correspondingly greater amount of poisonous vapors.

Such being the case, the connection between large, fully acting lungs and vital power is readily understood. To increase the size of the chest and to enlarge the habitual movements of respiration is to insure an immediate increase of vitality, and vitality is the essential condition of power, mental or physical.

One who appreciates the force of the facts and principles just presented, and who desires to increase the intake of oxygen through enlarged chest capacity and increased breathing movements will naturally inquire as to the best methods by which such increase can be gained.

To such I would say at once that of all the structures of the body the lungs are the most elastic and the most easily developed. The efforts should be directed not only toward increased capacity, but toward increased flexibility of the chest. The chest



Fig. 128.

may be increased in size by methods of forcing which actually decrease instead of increasing the amount of air breathed. This forcing process simply sets the muscles of the chest, making the chest walls rigid and thus preventing the free expansion and contraction which is essential to proper breathing.

The three most important influences in enlarging the size of the chest are habitual posture or carriage of the body, freedom from undue restraint of clothing and systematic exercise. In seeking to enlarge the chest the constant effort to hold the chest high—up and forward—is absolutely essential. Without this constant effort mere practice of exercises will have little effect. A second condition necessary to any considerable increase in the size of the chest is freedom from undue pressure of clothing. The most devoted practice of exercises and the constant effort to hold up the chest will be practically unavailing if, through the pressure of a tight high collar or neck dressing, the head and neck are constantly drawn forward; or if the trunk is so compressed by a tightly buttoned waistcoat or gown, a corset or a belt, as to hold the chest in a contracted position.

The first point, then, to be observed by the person who would increase the size of the chest is to make a habit of carrying the chest lifted and expanded, so far as this can be done without undue strain. The second is to secure as much freedom as



Fig. 129.

possible from the restraints of clothing, especially over the back of the neck and about the chest.

If these points are borne in mind the systematic practice of the exercises given herewith will result in an increase both in size and flexibility of the chest wall, with consequent enlargement of the breathing movements.

The exercises should be practiced either in the open air or in a well ventilated room. The time devoted to them will vary with the strength and circumstances of the individual. Ten minutes two, three or four times a day is a fair average. The number of repetitions of each exercise may be anywhere from three to ten, in accordance with the strength and endurance of the person. Invalids and those who are delicate may commence by going through each movement once, increasing the amount of work as they feel warranted. The point of prime importance is to acquire flexibility of the chest walls. In the shallow breathing they are always contracted, depressed and rigid. The first exercise is for the purpose of uplifting and expanding these walls.

#### EXERCISE NO. 1.

Stand erect. Now take deep breath as though about to yawn; gently raise arms, palms outward; turn face in the same direction, and stretch firmly upward as though trying to touch the ceiling. After a moment gently lower face and arms and exhale breath. (See Fig. 127.)

This exercise, simple as it appears, brings into



Fig. 130.

vigorous action nearly every muscle in the body. For hollow back, round shoulders, flat chest, protruding shoulder blades and abdomen, and other deformities co-existent with faulty carriage and shallow breathing, it is one of the most powerful remedies I know. Care should be observed not to put too much force into this movement. Just make it a good, comfortable stretch, with an imitation of the yawn that should go with such a stretch.

#### EXERCISE NO. 2.

Stand erect. Now take a deep breath, at the same time raising the arms, palms upward, to a level with the shoulders, and stretching firmly outward and backward. The head should be thrown somewhat backward and the face turned toward the ceiling, so that the chest may be uplifted and expanded. (See Fig. 128.)

Care should be taken to turn the palms so that the arms are rotating swiftly backward.

For broadening the shoulders and deepening the chest so as to permit full expansion of the chest walls this is a most valuable exercise.

#### EXERCISE NO. 3.

Stand erect, without strain, eyes front, arms hanging easily at the sides. Now gently inhale breath through the nostrils, at the same time lifting the arms straight out at the sides, and so timing their movement that when the lungs are fully inflated the hands meet, thumbs touching above the head. At the same time the face is slightly raised toward the ceiling. Then, without holding the



Fig. 131.

breath, exhale gently, sweeping the arms, hands together, downward and forward, so that when the exhalation is complete they shall be again hanging at the sides. (See Fig. 129.)

The important points to be observed in this exercise are, first, extreme gentleness and slowness; second, steadiness. Avoid all force, all haste, all sudden movement. Teach the muscles to act gently and freely. Don't try to force the air into the lungs. Just let it flow in. The arms sweep in a gentle, unbroken circle. The head sways upward as the arms rise. The more slowly and gently this simple, gentle, and yet powerful, exercise is performed the greater will be the results.

For allaying nervousness, pain, insomnia, for developing purity and fluidity of vocal tone and for increasing the flexibility of the chest walls this exercise is, in my opinion, invaluable.

#### EXERCISE NO. 4.

Stand easily, with hands at the waist, thumbs back. Now allow the head to fall on the chest, then the chest itself to sink, as you bend limply toward the floor, at the same time inhaling the breath through the nose, slowly and gently, so as to expand the waist between the hands. Then, without holding the breath, rise slowly, at the same time exhaling the breath. (See Fig. 130.)

In practicing this exercise it should be remembered that any muscular effort beyond that necessitated to gently move the body as directed will defeat the end in view.



Fig. 132.

This exercise is of value in bringing into use the diaphragm and abdominal muscles which, particularly in women, are seldom used as they should be, either in respiration or in tone production. This exercise also is particularly valuable in tone, imparting firmness and volume without a trace of forcing or the so-called "muscular quality."

EXERCISE NO. 5.

Stand easily, with the backs of the hands gently touching the back, just under the shoulder blades. Now gently incline, first the head and then the body, bending forward as in the preceding exercise, at the same time inhaling through the nose and allowing the inspired air to expand the back, so as to push the hands outward and further apart. Then gently exhale, carrying the head backward, and bending the back just where the hands touch until they are allowed to come far inward and close together, while the head hangs limply down between the shoulder blades. (See Figs. 131 and 132.)

In practicing this exercise care should be taken not to bend backward in the lumbar region ("small of the back"). The waist muscles should be held firm, and the backward bend should be made as high up under the neck as possible.

The importance of the back in breathing and in tone production has been largely, if not wholly, overlooked by authors and teachers.

This exercise has an effect upon tone similar to that of exercise No. 3. Five minutes' careful practice of either of these exercises by any singer will

demonstrate their practical value, imparting to the voice something of that smoothness, purity and lustre which characterize the perfect tone. The special feature of these exercises is that they will inevitably increase the size and improve the contours of the chest, without making it rigid or injuring the delicate lung tissue. Both of these effects are often the result of harsh and unnatural methods, by which rapid results are aimed at.

The systematic and careful practice of the exercises herewith given will result in a steady increase in capacity, contour and flexibility of the chest, will impart new and desirable qualities to both singing and speaking voice, and will have a most striking effect in improving the general health.

#### THE CURE OF CONSUMPTION.

That pulmonary tuberculosis, commonly called consumption, is, by proper treatment, readily curable at any stage will be no news to many hygienists and practitioners of the so-called rational, or natural, system of treatment. The mass of the profession, however, has been so intent in studying the pathological and histological details of the disorder—so engrossed in the search for a bactricide to kill the “germ,” or a “serum” or “anti-toxin”—that the true nature of the disease and the logical theory of treatment have been quite overlooked.

Few qualified medical men could now be found who would not admit that inoculation and drug medication have been absolutely useless in the

treatment of consumption. Yet among the majority of medical practitioners of the present day there is no knowledge whatever of any other measures.

At the present time the attention of the medical profession and, to a large extent, of the intelligent laity has been aroused by the report from the government sanitarium for consumptives, located at Fort Bayard, near Silver City, N. M. The physician in charge—D. M. Appel, major and surgeon, U. S. A.—makes the following statement:—

“We have demonstrated at the Fort Bayard Sanitarium for Soldiers that we can cure consumption in any stage. I don’t mean to say that if people come to us with lungs so far gone as to destroy their breathing power we can cure them, but I do say we can cure what has long been regarded as hopeless—the third stage of the disease. I have never made that statement publicly before. I have not been ready to make it.

“We have been working for results since the establishment of the sanitarium, three years ago, and we have been doing a great deal of original investigation regarding the treatment of tuberculosis. Our best hopes have been realized, and now you may inform the public that, under the conditions which prevail in this Territory, the dread disease has been robbed of its terrors.”

The treatment is merely that which has been for years followed by the practitioners of the rational system. It consists of open air living, generous diet and rest. During the daytime the patients are not

allowed under cover, and at night all windows are wide open.

It may be remarked that Fort Bayard is in about the same latitude as Charleston, S. C., and has an elevation of over six thousand feet, thus making a climate in which the outdoor living is practicable. It is a common thing for these patients to gain ten pounds a week. One increased from 140 to 190, another from 128 to 210, and another from less than 100 to 160.

That consumption is curable, even in the third stage, is not news to some of the profession. The great importance of the results obtained at Fort Bayard and their publication is that the great mass of the people will learn not only that the "white plague" is curable, but that the curative measures are the natural therapeutics of outdoor living, proper food and rest, instead of filthy serums, deadly anti-toxins and hardly less deadly drugs.

## **ROUND SHOULDERS AND "PRO-TUDING COLLAR BONES"**

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### **CHAPTER XVII.**

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Of all the physical defects to which human beings are subject, the most general and perhaps the most far reaching in its injurious results is that misplacement of the chest, collar bones and shoulder blades, commonly known as "round shoulders." "Hollow back," "sickle back," "turtle back," "hollow" or "flat chested" are terms used to describe the same conditions, applied in accordance with the most prominent symptom. For, it must be clearly understood that the bones of the trunk, vertebrae, ribs, shoulder blades and collar bones are normally "keyed" together like stones in an arch, and that displacement of any portion of this structure, indeed of any one bone, means displacement of all. Thus "round shoulders" always means curved back, and "hollow" or "sickle back" always implies displacement of shoulder blades and collar bones. To correct the one without at the same time readjusting the other is impossible.

The correction, then, of any one of these defects means no less than a readjustment of the entire bony structure of the body. Nor is this all. Such correction means not only a replacement of the



Fig. 133. Correct Carriage of Chest and Shoulders.

bony parts, but a readjustment of the vital organs contained within the bony framework. The "round shouldered" or "flat chested" man or woman has actually displaced every organ in the body. All—heart, lungs, stomach, liver, bowels, generative organs of the woman—are hanging down, resting against and pressing upon each other until not one is capable of proper functioning. The man or woman who sets out to correct "round shoulders," "sickle back" or the "bones" which are a source of anxiety to so many young girls—such a man or woman will do far more than correct an ugly deformity. He or she will add enormously, incalculably, to health, endurance, energy and length of life.

The young man, or the older man, who would possess the flat back and the high chest which is, the world over, the ideal of masculine power and charm; the young woman, or the less young woman, who would be "deep breasted as Juno," who would be dazzling en decollete, who would radiate an aura of magnetic femininity—these would ask two questions:—First, "Can this condition be remedied?" and, second, "How?"

To the first question I would answer "Yes." The task is not so difficult as it would appear. It requires some little perseverance, but it is an interesting task. What task can be more interesting than to watch one's self develop under one's own efforts?

The "cure" for round shoulders and protruding



Fig. 134. Incorrect Carriage, Showing Displaced Collar Bones and Shoulders.

collar bones consists of the systematic practice of postures and movements which require in their execution the replacement of these parts. Numerous exercises have been devised for this purpose. Those given herewith are believed to be the best for general use. They have been arranged in two sets; the first set, consisting of exercises 1, 2 and 3, are advised for the use of those people who are delicate, or who, for any other reason, desire comparatively mild exercise; the second series, including exercises 4 to 7, are advised for those who are robust and who desire most rapid results. I do not mean to imply by this that the results of the first series of exercises are necessarily slower than those of the second series. Indeed, in my own practice, I find that slender, delicate people, using exercises similar to those included in Series I, often make greater progress than those people making greater effort. As a rule, this condition of flat chest and displaced shoulders is more easily corrected in the slender and comparatively delicate than in the robust. The most difficult subject of all in this respect is the highly developed athlete, because in his case the displaced structures are held in their place by rigid and abnormally large muscles.

As to the amount and frequency of practice, only general directions can be given. Each person must be governed by his or her own requirements and capacities. As a rule, ten minutes on rising and the same period on retiring will do to



Fig. 135.

begin with. With increasing strength and endurance this time may be gradually increased up to twenty or even thirty minutes, two or three times a day. No exercise should ever be taken which produces the slightest pain or discomfort, and the first sign of fatigue should always be the signal to stop at once.

The two systems of exercises herewith given are arranged to be practiced in the order given, save that the relaxing movements should be practiced last. This is best for several important reasons.

#### SERIES I.—EXERCISE NO. 1.

Stand erect, feet together, arms hanging at the sides. Now take in breath slowly and gently, at the same time raise the arms straight up toward the ceiling and turn the face in the same direction. Then, holding the breath as in a yawn or a grunt, stretch both body and hands straight upward and forward toward the ceiling. After a stretch of from five to ten seconds, slowly return to position, at the same time allowing the breath to escape in a gentle sigh. (See Fig. 135.)

This exercise, simple as it appears, brings into action every important muscle of the body, develops heart and lungs, and acts directly and powerfully toward replacing the vertebrae, the collar bone and the shoulder blades in their normal positions. With practice the time spent in the stretch may be lengthened to twenty or even twenty-five seconds. Avoid especially excessive force in the



Fig. 136.

practice of this and the following stretches. Use no more force than that ordinarily employed in a yawn accompanied by a stretch, which is the natural exercise of animals and of man.

#### EXERCISE NO. 2.

Stand erect, feet together, arms hanging at the sides. Slowly raise the arms straight up in front, palms downward, at the same time gently taking in the breath so that when the arms are extended straight up over the head the lungs will be fully inflated. Then, holding the breath, pass the arms slowly downward and backward as far as possible, sweeping them around in a wide circle. (See Fig. 136.) Exhale slowly at completion.

This exercise should be performed with care, passing the arms as far upward, backward and downward as possible; in other words, making the largest possible circle. The movement is especially effective in replacing shoulder blades and collar bones.

#### EXERCISE NO. 3.

Stand erect, feet together, arms hanging. Now let out the breath in a gentle sigh. At the same time let the head fall limply forward upon the breast. Then relaxing the upper part of the spine let the body bend forward, arms hanging, more and more, until the finger tips hang near the floor; do not allow the knees to bend even to the slightest. Do not make any effort to reach the floor with the finger tips. Simply let the body, head and arms fall limply forward toward the floor. After a few



Fig. 137.



Fig. 138.

seconds (from three to six) slowly raise the body, first the lower part, then the upper part, and lastly the head to the upright position. (See Fig. 137.)

The main object of this exercise is to stretch the ligaments on the posterior side of the knee joint and of the spine, so that they can be held straight, and to force the spine at the small of the back out of its rigid curve. Although apparently gentle, this exercise is most valuable, both for vital development and for correcting false posture. Exercise No. 3 is a relaxing movement, and should be practised by itself after the student has thoroughly gone through with exercises Nos. 1 and 2.

#### SERIES II.—EXERCISE NO. 4.

Stand erect, feet together. Now take breath and, at the same time, raise the arms straight upward and clasp the hands together over the head, stretching both arms and body firmly upward toward the ceiling. Then, still holding the breath, sway the body from the waist slowly backward and forward and from side to side. After a few moments lower the hands, allowing the breath to escape in a gentle sigh. (See Fig. 138.)

This exercise calls for a greater outlay of energy than any of the preceding. It is, however, most valuable in elevating and freeing the depressed ribs and breast bone and in readjusting all the other bony structures of the trunk.

#### EXERCISE NO. 5.

Stand erect, feet slightly apart. Now bend the body forward until it is horizontal and extend the



Fig. 139.

arms side by side straight out in front. Then stretch firmly as though trying to reach forward with the arms and backward with the body. (See Fig. 139.)

A variation of this exercise is to twist the body slightly from side to side without relaxing the stretch.

This exercise is adapted to the use of active and robust students. It is especially valuable in correcting "hollow back."

#### EXERCISE NO. 6.

Stand erect, feet together, arms hanging, weight on the balls of the feet. Press the knees firmly back, lift the chest up and forward and draw the head well back. Raise open hands, palms forward, about on a level with and near to the shoulders. Now take a deep breath and hold it, at the same time lifting the chest still further forward and drawing the hands as far downward as possible. After holding this pose for a brief period (from five to ten seconds) relax all the muscles, allowing arms and body to fall into an easy, relaxed position. This is a very valuable exercise for correcting all the common faults of carriage. It is a severe exercise, however, requiring a large outlay of force, and is adapted for the practice only of those who are strong and active. (Fig. 140.)

#### EXERCISE NO. 7.

Stand easily, feet well apart, arms hanging loosely at the sides. Now relax all the muscles and



Fig. 140.

gently sway or rotate the body as on a pivot from side to side, allowing head and arms to swing loosely as they will. Do this as easily as possible. The object of the movement is to rest the muscles and to take out of them the contraction and rigidity resulting from the practice of Exercises 4, 5 and 6.

This exercise, like exercise No. 3, should be practised by itself after finishing the vigorous exercises of Series II. Exercise No. 3 may also be used after the movements of Series II.

## HOW TO STRENGTHEN THE BACK

### CHAPTER XVIII.

One of the most common points of weakness is the back. It is not unusual to find an athlete with bulging biceps and protruding pectorals, whose back is habitually so weak and tender as to render him unable to perform simple feats without resulting lameness and soreness. Many a man and woman, strong everywhere else, is rendered incompetent for active exercise because of a weak back. The ordinary treatment of "counter irritation" by means of "porous plasters," "packs," &c., is of no value whatever. Massage, especially the vigorous use of the "massage roller" or the "massage vibrator," often affords relief, but does not reach the cause of the difficulty and cannot, therefore, affect a complete cure.

What is the cause of weak back, and what is the cure?

The cause of weak back is always strain placed upon the ligaments and supporting muscles of the spinal column. This strain may be the result of a sudden exertion which lacerates a ligament or muscles, or the strain may be caused by such a carriage of the body that the spine is habitually curved. The weight of the body thus gradually forces the

vertebrae, the ribs, the shoulder blades and the collar bones out of their place, and the muscular strain of bearing up under this weight leads to the weakness and tendency to lameness which is so common.

A straight spine is like an erect column and bears the weight of the body with ease. The spine of the average person, however, is like a column bent into several angles, and to bear the weight of the body when the spine is so held results in the common "weak back." A straight spine is rare. Ninety-nine out of every hundred people have crooked spines. I base this statement upon examinations covering several thousand people. If my estimate is thought to be excessive I suggest the following tests for a straight spine:—

Let the subject stand with the back against the edge of an open door. If the spine is straight the back of the neck, the small of the back and the buttocks will touch the door. If the small of the back does not touch the door the spine is not straight. Generally the small of the back will be found to curve away from the straight edge of the door, leaving a space of from one to four inches.

The second test is to place the subject in his habitual standing position. Then put upon his head a weight of from twenty to forty pounds. If he can stand with this weight on his head for five minutes without pain or discomfort the spine is straight. If the spine is curved the subject will not be able to bear such a weight for two minutes without severe pains in the neck, the shoulders or



Fig. 7.

the lumbar region, "the small of the back."

Few adults will meet these tests. Yet all children under three are straight spined and all the people who habitually carry loads upon their heads must necessarily carry those on the top of a straight column.

To enter into the causes of this very common and pernicious condition of the spine would be interesting and profitable; but the space at my command will not permit of this. Enough to say that almost all the influences of civilized life tend to destroy the poise of the body and to throw into a series of curves the vertebral column, which should be straight. Clothing, desk work, hard labor, such as lifting, shovelling, bench work, &c., many sports and games, deficient oxygen and various other causes combine in producing this destructive effect.

Weakness of the back, soreness, lameness, inability to lift or carry weights, sometimes even to walk a few miles with comfort—these are usually caused by that curvature of the spine which is so common and so little understood.

Now, considering this weakness of the back to be present, what treatment is best calculated to give rapid, permanent and certain relief? In a word, the treatment must be directed toward (1), straightening the curved spinal column, and (2) developing the muscles which hold it in place. For this purpose general exercise (the free play which I so often recommend) is entirely inadequate. The condition can be remedied only by a systematic



Fig. 8.

course of exercise specially adapted to its treatment.

Such a course of exercises adapted to the average case of "weak back" I give herewith. The practice of these movements for ten or fifteen minutes twice or three times a day will cure the average "weak back." The length of time required for such cure depends, of course, upon the severity of the case, the strength of the patient and the regularity and perseverance of the drill. The exercises, like nearly all that I prescribe, are adapted to the use of the strongest athlete or the most delicate weakling, as the amount of force put forth can be regulated by the patient.

The first result of the practice is frequently to cause an increase in the pain and soreness. This is quite natural and should not be allowed to interfere with the drill. Ordinarily it will disappear after a few days. In such cases hot packs and self-massage with the "massage vibrator" will be found helpful.

#### EXERCISE NO. 1.

Stand erect, feet together, head and chest lifted, weight thrown forward. Now take breath slowly, at the same time turning the face upward and raising the arms straight up, palms turned toward the ceiling. Then stretch firmly upward with head, hands and body for about ten seconds. Lastly, exhale breath gently and return to position. (See Fig. 7.)

In this exercise it is essential that the weight should be swayed forward as far as possible. This



Fig. 9.



For Straightening the Back.



For Straightening the Back.

forces the knees back, lifts the chest and forces the spine into a position approximating the normal.

EXERCISE NO. 2.

Stand erect, feet together, chest and head up, body swayed forward, with weight on the balls of the feet. Now inhale full breath gently, at the same time raising the arms and clasping the hands above the head. Then, still holding the breath, twist the body as on a pivot, first to the right and then to the left, as far as possible, keeping up the movement till out of breath. (See Fig. 8.)

EXERCISE NO. 3.

Stand erect, feet slightly apart. Inhale breath, raising the arms straight upward, palms forward. Now bend the body forward until body and extended arms are pointing on a line forward and a little downward. Then stretch first as though trying to reach some object just beyond the finger tips, moving the body at the waist slightly from side to side. (See Fig. 9.)

EXERCISE NO. 4.

Open an ordinary door. Stand with the back against the edge of the door and pass the hand along your back where it comes into contact with the door. Note the point at which the spine curves away from the straight edge of the door and endeavor to so control the muscles that you can push this curved place against the edge of the door without moving the head from its position.

EXERCISE NO. 5.

Lie down flat upon the back upon the floor.



Fig. 10.

Place the hand under the small of the back, and then by a muscular effort try to force just this part of the back down upon the floor.

EXERCISE NO. 6.

Stand erect, feet together, arms hanging at the sides. Now, exhale the breath in a gentle sigh and let the head fall limply upon the breast. Then bow the chest and shoulders forward; let the body follow, arms hanging downward toward the floor, the knees sprung backward. After holding this position a few seconds slowly return to the erect posture. (See Fig. 10.)

This exercise, gentle as it seems, is one of the most powerful I know for correcting the most common and pernicious form of spinal curvature. It is also a valuable relaxation exercise, and whichever of the other movements was given or selected this one should always be taken the last. For relieving the strain of fatigue after walking, sitting or desk work, this simple movement will be found to have a surprising effect.

The above exercises will not only straighten the spine, enlarge the chest and improve the voice, but will stimulate every vital function and so improve the general health. The increased strength of the back and the freedom from tendency to soreness and lameness in this region, while the most direct and immediate result of their practice, is only one among many good effects which will follow from their practice.

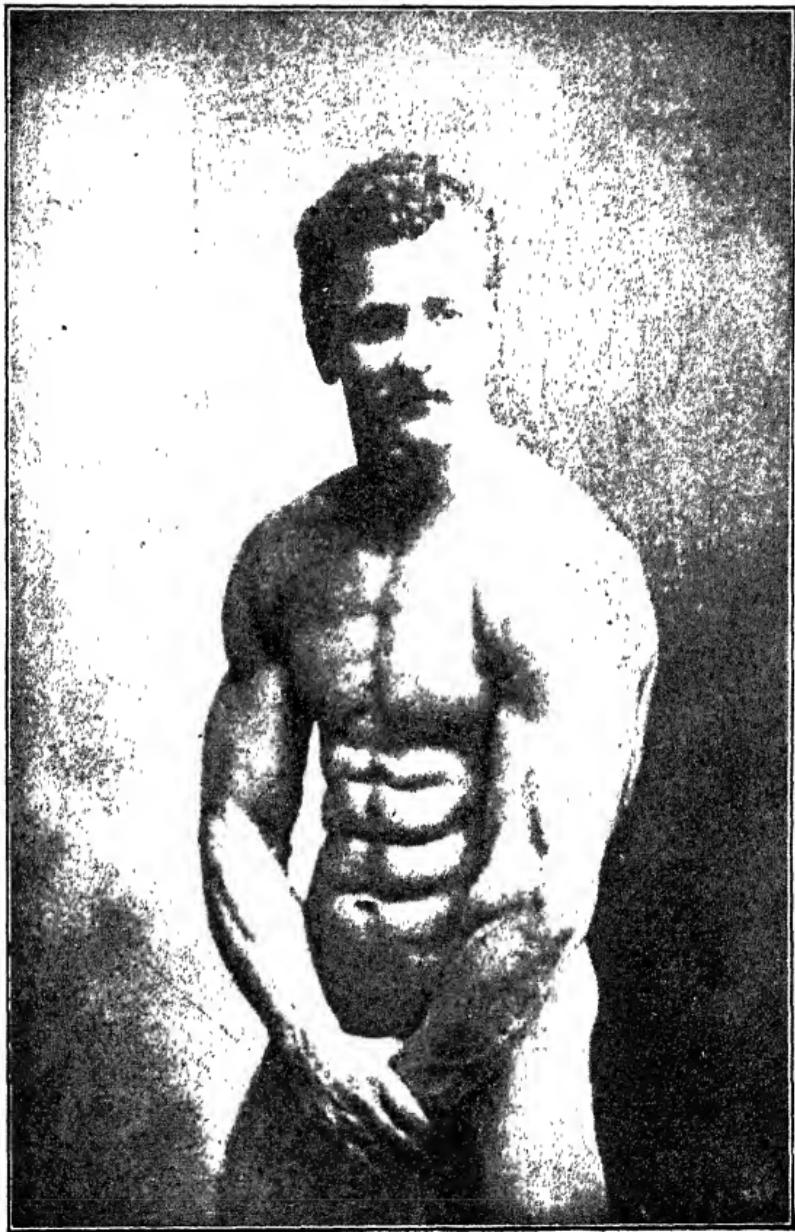


Fig. 147. Sandow. Remarkable development of abdominal muscles. 247

## HOW TO STRENGTHEN THE MUSCLES OF THE TRUNK.

### CHAPTER XIX

The most important muscles of the body are the diaphragm and the muscles of the waist and abdomen. To describe these muscles at length, giving their functions and the influence of each upon the vital processes, would be interesting and instructive, but space will not permit. It is enough to say in a word that in all bodily movement—walking, running, bending, lifting and in all the various sports and exercises—these are in reality the muscles mainly depended on.

It is popularly supposed that a strong arm and shoulder in a boxer mean the ability to strike a heavy blow. Such is not the case; or at least it is so only when, in addition to the strong arm and shoulder, there is proportionate development of the waist muscles. The expert boxer of modern times strikes not with the fist, not with the arm, but with the body. In the blow as delivered by the modern boxer the main force is gained by a pivoting of the body, in which the abdominal muscular belt is the main agent. Any one who has closely watched a wrestling bout need not be told that these are the important muscles in this exercise.



Fig. 148.

In swimming and fencing the same is true. So in all the varied feats of the acrobat and gymnast, bars, horse, flying rings, trapeze, tumbling, and so on. The developed arm, leg and shoulder so highly prized by the average athlete are of little value unless there is also corresponding strength of the trunk muscles. A man's arm may be strong enough to lift a thousand pounds, but if his back muscles are capable of lifting only two hundred pounds he cannot possibly lift from the floor a weight of more than two hundred pounds.

In testing a man's strength and development, then, ask to see not his arms, but his waist. If he is strong there he is strong all over. If he is weak there, big extremities will not be of much use. A chain is no stronger than its weakest link, and a man with large arms and an undeveloped waist has a weak link right in the middle. He may be a wonder when asked to "chin the bar" or "dip" or do some other futile "stunt," but when it comes to an honest test of strength or endurance he will fail because of that "weak link" at the waist.

Now, all this has an important practical bearing. It is not every man who needs, or cares to acquire, the powers of an exhibition athlete, but any man may at any time feel called upon to run for a car or for a doctor, to climb rapidly a flight of stairs, or to pick up, perhaps to carry, some one sick or disabled.

In performing, or in trying to perform, any of these feats. the man with weak waist muscles is in



Fig. 149.

danger—in danger not only of strain, but of a much more grave casualty—rupture. Few people outside the medical profession realize the prevalence of rupture. Few, apparently, even within the profession, realize that the only protection against rupture is to so develop the muscles of the abdominal region that they will not readily succumb to an unusual effort.

For the encouragement of those who desire to develop these muscles, I may say that there is no muscular area of the body which is so readily developed as these by simple exercises. Besides this, an increase of vigor in this region always means that the breathing becomes slower and deeper, the voice gains in compass, volume and quality, the digestion improves, constipation is nearly always relieved, the movements take on new force, ease and freedom, and the general health is improved.

I append herewith a few simple exercises, the faithful practice of which will soon work wonders in this important muscular region.

As to the number of times which each of the movements here given shall be practised, as to the length of time given to the practice, as to the amount of force put into the stretch—no advice can be given that will apply to all cases. Those who are young and strong, and who are desirous of gaining the greatest results in the shortest time, may practise the movements from six to ten times going straight through the series of stretching and bending exercises, taking each one once and then



Fig. 150.

repeating as often as seems advisable. For a robust person an hour a day is not too long, and this will often produce surpassing results in a short time. For the aged, the feeble or the delicate some degree of caution is necessary in this practice, as undue force or persistence may result in strain or lameness. Each person must study his or her own requirements and adapt the time given and the force applied to his or her own case. It is always better to do too little than too much.

The relaxing movements given in exercises No. 6 and 7 are for the purpose of relieving strain and of restoring to the muscles that elasticity and freedom which is so essential to grace and flexibility of movement. They are always to be taken for a few moments after the stretching and bending movements. Always end with a feeling of entire flexibility and restfulness.

#### EXERCISE NO. 1.

Stand erect, feet together, knees back, weight forward. Now take full breath, and, while holding the same, raise the hands straight up over the head, and stretch firmly, as though trying to reach the ceiling. (See Fig. 148.)

This exercise will doubtless seem very simple to some, and yet it is one of the most powerful ever devised for enlarging the chest, straightening the spine, increasing the height and developing the muscles, especially those of the waist and abdominal region.



Fig. 151.



Fig. 152.

## EXERCISE NO. 2.

This is a variation of the preceding. Stand erect, feet together, weight forward. Take breath and hold same throughout the exercise. Now raise hands as before toward the ceiling. Then, while stretching firmly upward, pivot the body slowly around, first to the right and then to the left, as far as possible without straining. (See Fig. 148.)

## EXERCISE NO. 3.

Stand with feet together. Take breath and hold same during the exercise. Now bend the body forward until it is horizontal, and extend the arms straight out in front. Then stretch firmly forward, reaching as far out as possible with the arms, while the body is firmly stretched backward, moving slightly from side to side. This movement is simply an imitation of an exercise instinctively practised by animals when fatigued or sleepy, or when the body is cramped by remaining long in one position. The animal usually performs the movement by bracing the forelegs upon the ground and stretching the body backward, always accompanying the stretch by a deep inhalation—that is, a yawn. (Fig. 149.)

## EXERCISE NO. 4.

Stand erect, weight forward. Raise hands to the level of the shoulders, elbows bent, palms forward. Now raise the head upward and backward until you are looking directly toward the ceiling. Then gradually pass the hands further and further backward, holding the waist firm and bending the body



Fig. 153.

higher up, at about the level of the lower border of the shoulder blades. (See Fig. 150.)

In practising this exercise some caution is necessary. In the first place, it is a very powerful movement, and if too much force is used—that is, if the body is allowed to bend too far backward—the enormous leverage brought to bear upon certain joints may cause strain. Another important point in the practice of this exercise is to make the bending backward of the body high up under the shoulder blades, and not in the small of the back. This is clearly shown by the sketches Figs. 151 and 152. Fig. 151 shows the correct position, with the abdominal muscles firmly contracted and the chest expanded. Fig. 152 shows the abdominal muscles relaxed, the chest contracted and the back in a strained position.

#### EXERCISE NO. 5.

This consists in simply bowing the body easily forward and to the sides, while the arms hang limply downward.

The foregoing exercises have been specially devised for the purpose of strengthening and developing the important muscles of the waist and abdominal region. In practising them it is best, as I have said, to take three, four, or all five, each one once, in the order given, repeating the series as often as seems advisable.

Always follow these vigorous movements by a few minutes of relaxation. For this purpose the following exercises will be found appropriate:—



Fig. 154.

## EXERCISE NO. 6.

Stand easily, feet well apart, arms hanging limply at the sides. Now gently turn the body around, as on a pivot, first to the right, then to the left, arms swinging loosely as they will. (See Fig. 153.)

## EXERCISE NO. 7.

This is similar to the preceding. Swing the body from side to side, arms hanging loosely, weight swaying from one leg to the other as the body turns. After a time lift one foot and then the other, stepping easily forward, thus imitating the gait of one who is thoroughly relaxed through fatigue or intoxication. (See Fig. 154.)

The proper performance of exercises Nos. 6 and 7 will entirely prevent the rigidity of muscles which might otherwise result from the stretching exercises. The faithful practice of the system here described will, I believe, provide the best method of developing the important muscles of the waist and abdomen, without risk of the evil effects sometimes produced by the severe exercises often taken for this purpose.

## HYGIENE OF THE SKIN.

### CHAPTER XX.

The skin is one of the vital organs of the body. In other words, the functioning of the skin is essential to the life of the individual. Everybody has heard the tale of the beautiful little boy who was to represent a church in a great pageant. Somebody thought it would be a good idea to cover the little boy's skin with gold paint. This was done, and in less than an hour the child died. The story may or may not be true, but there is no good reason why it should not be. For so important are the functions of the skin, that to fully arrest its action would certainly result in death within a short time.

A detailed description of the structure and functions of the skin is not here called for. A few facts may be of interest.

#### SOME INTERESTING FIGURES.

The skin of a person of average size presents a surface of about twenty square feet, and varies in thickness from one-eighth to one one-hundredth of an inch.

The skin consists of two layers—an outer and an inner skin. The outer skin is merely a protection for the inner skin, which contains the important nerves, blood vessels and glands, the action of

which is so essential to the general life. The outer skin is called the epidermis, and the deeper layer is called the derma cutis, the cutis vera, or the true skin.

The epidermis is readily separable from the derma cutis, and is that portion raised by the fluid of an ordinary blister, its chief purpose being, as I have said, to act as a protection to the true skin, which it covers. The epidermis itself consists of two layers—a deep layer, called the rete mucosum, and a superficial layer, consisting of dry, fat, horny cells. These cells are being constantly produced by the epidermis, and are pushed to the surface and shed by the skin. This process of shedding the superficial dry scales is going on constantly, the cells being thrown off in the form of minute scales.

The derma cutis, or true skin, contains the organs of sensation, the sensory nerves ending in it, thus giving rise to the concepts known as touch, in all its phases, and temperature. The nerve ends are infinitely numerous, being estimated at from fifteen millions to twenty-five millions in number. They are more numerous in some parts of the skin than in others; for instance, in the skin of the face and hands, especially of the finger tips, where they are very thickly gathered, while upon the back and thighs they are comparatively far apart.

The skin also contains an immense number (estimated at from three million to ten million) sweat glands. These are thought to be deposited as follows:—On the back, cheek, upper arm and thigh

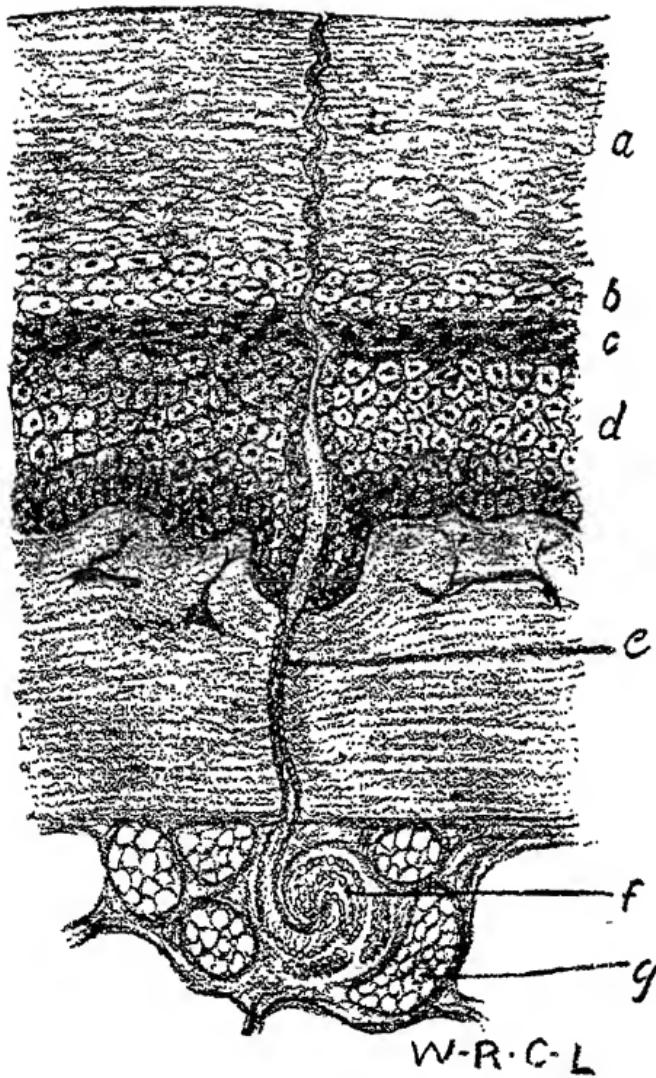


Fig. 155. —Diagram showing arrangement of cells forming the human skin. a, Dead and dying cells forming epidermis. b, Prickle cells. c, Pigment layer. d, Cutis Vera. e, Sweat duct leading to (f) sweat gland. g, Adipose tissue (fat) showing how the cells are arranged.

there are on each square centimetre from 300 to 600 glands; on the forehead, throat, breast, arm, lower leg, hand and foot, 900 to 1,000 to each square centimetre. The sole of each foot contains about 2,500 and the palms of the hand about 3,000 each. It has been calculated that if all the little sweat glands of the skin of one person were placed end to end they would reach a distance of twenty-eight miles.

#### WE BREATHE WITH THE SKIN.

Next to the kidneys, these little perspiratory glands are the chief means of carrying out of the system impure water and various other poisonous matters. The total amount of perspiration excreted in twenty-four hours varies according to health, habits and occupation of the individual, temperature, dryness, altitude and other conditions. It is probably on the average not far from one quart (or two pounds) of fluid in a day. Most of this is the so-called "insensible perspiration," which is evaporated into the air in the form of vapor. The skin also excretes carbonic acid gas and absorbs oxygen. It is estimated that the elmination of carbonic acid gas through the skin is one two-hundredth of the amount voided by the lungs, and that the skin absorbs one-sixth as much oxygen as do the lungs. The importance of free exposure of the skin to the sunlight and the air will thus be understood. Few people realize that they breathe with the skin as well as with the lungs.

## NERVES OF THE SKIN.

The skin is plentifully provided with nerves for the regulation of its blood supply and of its excretory functions. These are affected by various influences—heat, cold, pain or other well marked sensations, mental state, &c.—which occasion flushing, paling, heat, coldness, or “goose skin” on the skin surface.

Many more interesting facts might be presented concerning this most important organ. Enough, however, has been said to indicate the necessity of preserving its activity so that it may do full work in carrying off poisonous matters, in regulating body temperatures and in taking in oxygen.

The most important functions of the skin are to provide a means whereby certain impurities (mainly urea, alkalins, lactates and sudorates; also carbonic acid), may be excreted, to take in oxygen through the skin capillaries and to assist in the regulation of the body temperature. These functions are impaired by various influences. First and most general is lack of cleanliness. The many millions of sweat glands send their slender tubes (each tube is only 1-75 of an inch in diameter) to the surface. If the skin is clogged by an accumulation of dust, dirt, dried perspiration or unshed cells of the epidermis the little glands cannot vomit forth their poisonous contents. This means either the retention of the poison and resulting disorder or the taxing of other organs for its removal. No one

can be healthy unless the functions of the skin are active.

#### CAUSES OF DEFECTIVE SKIN FUNCTIONING.

The causes of this inactivity and clogging of the skin are various. First and most common is insufficient bathing. Second, the wearing of heavy clothing, which prevents the skin from receiving the stimulus of sudden changes of temperature. Contrary to the generally accepted belief, a sudden transition from heat to cold, or vice versa, is most beneficial to the skin and to the whole system. At this point some one is sure to ask, "How about catching cold?" I answer: A cold simply means retained waste matter trying to get out of the system. When the body is overloaded with retained poisonous matter exposure to cold air will sometimes stimulate it to the effort of expulsion known as "cold." A fast of twenty-four hours, with free water drinking, enemas and exercise will usually cause the "cold" to disappear. A cold is never dangerous, except as it is made so by continued feeding and drug poisoning.

The wearing of heavy clothing prevents the free action of the skin and is the principal cause of catarrh. Catarrh is simply the effort of the mucous membrane to excrete matter which the skin and other eliminating organs have failed to carry off.

Other causes of inactivity of the skin are indoor living and insufficient exercise. In addition to these it may be said that overfeeding, insufficient food, overwork, anxiety or any other influence

tending to lower the general vitality would have an indirect effect upon the skin.

Among the methods by which the natural activity of the skin may be preserved, or regained when impaired by neglect or ill health, are the following:—

Bathing.

Exposure of the skin to sun and air.

Massage.

Friction with hand, towel or flesh brush, massage vibrator or roller.

#### BATHS AND BATHING.

Generally speaking, baths are divided, as to temperature, into cold (below 65 degrees Fahrenheit), cool (65 degrees to 80 degree Fahrenheit), tepid (80 degrees to 90 degrees Fahrenheit), warm (90 degrees to 98 degrees Fahrenheit), and hot (above 98 degrees Fahrenheit). As to methods of application, baths are divided into plunge baths, sponge baths, shower baths, sitz baths, &c., besides the various curative operations of hydrotherapeutics, douches, pours, packs and so on. Hot air and steam baths are most important, and will be more fully considered later.

A full bath once a day is an absolute essential to health, as well as to cleanliness. Only by this method can the daily accumulations of dust and other foreign matter, dried perspiration and dead epidermal cells be properly removed.

The daily bath may be taken at any convenient time during the day. The one necessary caution

is that it should not be taken directly before or within two hours after a meal. The water for this bath may be cold, cool, warm or tepid. As to which is preferable no rule can be laid down. It may be said, however, that the use of the cold bath is advisable only for the most robust. Any chilliness, faintness or other discomfort attending its use is an indication that it is injurious. The indiscriminate recommendation of the cold bath by robust and unsympathetic physicians has done much harm.

For delicate, sensitive or nervous people—for all but a very few people—the tepid or warm bath, followed by a rapid sponging of the body with cold water or by the cold or cool shower, is preferable. The warm bath is one of the most effective sedatives known.

In cases of extreme fatigue, great excitement or nervousness the effect of the warm bath is both sedative and restorative. It acts with more certainty and more power than the drugs usually given in such cases, and is, of course, absolutely free from the dangers attending the use of anodyne drugs. Many people who suffer from insomnia would be relieved by a warm bath just before retiring.

The hot bath (temperature above 98 degrees) is seldom indicated. It is extremely stimulating and should never be taken except upon the advice of a physician.

'The cold or cool shower bath is an excellent

method of cooling the body after a warm bath, a hot air or Turkish bath, or when the body is heated by exercise. The warm shower is also sometimes used.

The sitz, or hip bath, is a powerful tonic to all the vital functions. The sitz bath, however, like the various douches, pours, packs and compresses constituting the system of treatment known as hydrotherapeutics, while of inestimable value in the treatment of diseases, does not come within the scope of the present work.

#### THE TURKISH BATH.

Of all the measures by which the healthy activity of the skin is promoted, the Turkish or hot air bath is undoubtedly the most important. Leading authorities upon physiology and hygiene are agreed regarding its good effects.

#### THE RUSSIAN BATH.

The Russian bath is similar to the Turkish, save that the bather enters a room filled with steam. It has many of the advantages of the Turkish bath, and is thought to be especially valuable in certain disorders. It probably has no good effect not also possessed by the Turkish bath.

#### THE ROMAN BATH.

The Roman bath consists of a thorough manual massaging, the operator using some refined unguent, which is well rubbed into the skin. It is valuable in promoting general activity of the skin and in aiding muscular development.

## SUN AND AIR BATHS.

Remembering that the skin is a respiratory organ—that is, performs an office hardly less important than that of the lungs in excreting poisonous waste and taking in oxygen—it will be readily understood that the almost universal habit of covering the skin with heavy clothing has a most effeminating influence upon its functions. The exposure of the skin to the sun and air has an immediate and striking effect upon the general functions and the sensations. The results of a half hour's exposure of the body to the air even of a well ventilated room will usually entirely relieve that vague feeling of depression and irritability from which we have all suffered, and which is merely an indication that we are being poisoned by unexcreted waste. The habit of spending a short time daily (from fifteen minutes to an hour) entirely nude will have a most salutary effect upon the health, strength and beauty of the person who tries it.

## MASSAGE AND FRICTION.

Massage, either by means of the hand or by any of the machines or instruments generally used for that purpose, is most beneficial in its effects upon the skin itself, upon the muscular development and upon the general health. Massage may be self-applied, or may be given by an attendant. The former is generally preferable, since, so applied, the person obtains the results both of the massage and of the exercise.

The use of the hand, pounding, slapping, kneading and rubbing, is, of course, the simplest method of applying self-massage. The instruments known as the "muscle beater," the "massage vibrator" and the "massage roller" are also valuable and have certain advantages over the hand.

General massage, the so-called "movement cure," is often of much value. The massaging of a strong and skilful operator, as given in a well appointed Turkish and Roman bath establishment, is probably the most beneficial of all forms of massage.

Friction may be given by means of the bare hand, the "friction glove," the "flesh brush" or the Turkish towel. One of the simplest and perhaps the best means of applying friction to the body is to take a large Turkish towel, one end in each hand, and draw the towel vigorously over various parts of the body. It is surprising to what extent the body may be reached in this manner, and the effect upon the bodily functions and upon the spirits is no less gratifying.

In concluding these fragmentary observations on the skin I would reiterate that the skin is one of the vital organs, that the health of the individual depends very largely upon the normal functioning of his skin, and that this normal action of the skin is impeded by many of the conditions of modern life.

As a corrective of these conditions I would suggest a daily ablution of the entire body in cool or warm water, a daily sun or air bath, with ~~vigorous~~

friction, and a weekly Turkish or sweat bath. This may be taken as a general rule. Individual cases differ widely in their requirements, but I feel safe in stating that in all forms of weakness and disease the application of water and of hot air to the skin is the most important remedial measure known to therapeutics.

## MODERN NERVOUSNESS—ITS CAUSE AND CURE.

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### CHAPTER XXI.

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Each period in the world's history has been marked by its characteristic disorders. The Middle Ages was the epoch of plagues. Later came an era of rheumatoid and typhoid diseases. To-day we have disorders practically unknown in the past—disorders which are the natural outcome of modern conditions, climatic, social, intellectual and moral. Among the most noticeable and pernicious of these disorders is nervousness.

Nervousness is the rampant epidemic of the day. Practically every one suffers more or less from nervousness. Few, even among those considered thoroughly healthy, are free from it.

That nervousness is rapidly increasing needs not the testimony of the statistician. Each one may see for himself that such is the case. Of the patients that come to a practising physician of to-day nine out of ten are either suffering from some "nervous disease" or have some nervous complication.

The symptoms of nervousness are infinitely varied—muscular rigidity, restlessness, excitability, irritability, insomnia, whimsicality, illusions, monomania, dementia, besides many disorders of nervous origin, such as stammering, St. Vitus' dance, &c. Disturbances of digestion, circulation and

other vital functions are also among the common symptoms of nervousness.

Only he or she who has suffered from some well marked nervous disorder can realize the utter unhappiness and despair which is the accompaniment of such conditions. The sense of impotency, the loss of individuality, from which such patients suffer are beyond all description. To one who has experienced this there is small wonder that so many are tempted to suicide while in this condition.

Under the old system of treatment by drug medication nervous disorders have been found the most intractable of all disorders. By the newer methods, however, of diet, exercise, baths, massage and suggestion, nervous disorders are among those giving the largest percentage of cures.

#### SYMPTOMS OF NERVOUSNESS.

**Muscular rigidity.**—This is usually general, all the muscles throughout the body being in a state of constant contraction. The muscles of the face are contracted, the brows upraised or frowning, the mouth and cheeks drawn down, and the tissues of the face thrown into furrows and wrinkles. Often the jaws are habitually set, and the muscles of the throat stiffened. Muscles of the hands, feet, neck, limbs and trunk are also stiffened. This rigidity of the muscles of the chest interferes with the breathing, and, in connection with throat tension, renders the voice thin, high pitched, forced and unmusical.

Of all the many symptoms of nervousness this condition of muscular rigidity is the most common.

It fact, rigidity is both a result and a cause of nervousness, for the constant muscular rigidity means a heavy drain upon the vital force, and makes the sufferer still more nervous.

Restlessness.—General muscular restlessness, that is, purposeless activity, such as constant change of position, drumming with the fingers, twirling the thumbs, facial movements and so on, is another common symptom of nervousness. Like muscular rigidity, this condition of restlessness is also a retroactive cause of nervous weakness, through the drafts made upon the vitality.

Another symptom of nervousness connected with muscular rigidity is the habit of using excessive force in the performance of simple everyday acts. The nervous man handles a pen as if it were a crowbar, uses a knife and fork as if he were chopping down trees, and shakes hands as if he were hauling on a hawser, using up in these and other similar acts an amount of nervous vitality sufficient to keep him constantly exhausted.

Irritability is another common symptom of nervousness. It is simply a sign of nervous insufficiency to cope with the occasion. The habitually irritable person is not to be blamed, but to be pitied—and to be treated.

Loss of memory, inability to concentrate the mind, antipathies, whimsicalities of various kinds, attacks of tears, laughter and sobbing, as well as delusions, hallucinations and mania, are among the not uncommon results of nervousness.

## WHAT IS NERVOUSNESS?

The human body may be regarded as a mechanism for the generation of energy. This energy the body makes from the food, water and air which it takes in. The energy is expended in physical and mental labor and in those activities which convert the food, water and air into energy.

The whole matter may be reduced to a very simple equation. From food, water and air the body derives a certain amount of energy. In work, digestion, recreation, thought, &c., the body expends a certain amount of energy. If this expended energy is less than that made by the body all is well. But if the body, through overwork, worry or unhygienic habits, expends more energy than it makes, there is a loss of vital force and eventual nervous bankruptcy.

Nervousness, then, expressed in simplest terms, is the set of symptoms indicating that the body is making less energy than it uses.

## THE CAUSES OF NERVOUSNESS.

The immediate cause of nervousness, as stated above, is a lowering of the vital force due to excess of expenditure over income of vital energy. The more common influences leading to this condition are overfeeding, overwork, lack of exercise, overdressing. Injurious mental states, such as revenge, anger, remorse, grief, &c., are strong influences in lowering the vital powers. Worry is, perhaps, the most pernicious of all mental states.

## TREATMENT OF NERVOUSNESS.

The point of first importance in treatment of worry is to correct errors of diet. The essentials of proper diet are to supply to the body material suitable for its upbuilding in proper quantity and at intervals sufficient to permit the stomach to empty itself and to be ready for another load.

One of the main causes of lowered vitality which is indicated by nervousness is the taking of food excessive in quantity or variety, defective in kind or at too frequent intervals. Very often the mere work of digesting and excreting a quantity of food far in excess of the needs of the body is the cause of the nervousness.

Details as to diet can hardly be discussed here. It is enough to say that in every case the sufferer will be benefited by a well selected dietary of plain, simple foods, properly combined and taken at intervals of not less than six hours. Often two meals daily, with a longer interval, will be found advisable.

## OVERWORK.

Another common cause of nervousness is overwork. Overwork also implies faulty methods of work. The driving, "hustling" habits of work so common among Americans are simply a result of and a cause of nervousness.

## THE FOLLY OF OVERWORK.

Few realize the folly of overwork. And yet the principle involved is a simple one. Suppose that the energy derived by a man from food, water and

air be considered 100 units. Suppose that in bodily and mental work and in digestion, circulation and other vital functions he uses up ninety units. He remains well and happy. But suppose that, owing to a change of habit or conditions, he comes after a time to make only ninety units of force. And supposing that, at the same time, he works harder with mind or body or both, so that he is using up 100 units of force. Now, the expenditure is greater than the income, the previous reserve is being drawn upon, and weakness, nervousness in its various forms and disease are the natural result.

Overwork is folly from every standpoint. Not only is the person injured beyond all comparison to the thing accomplished, but the work itself is almost always defective.

#### LACK OF EXERCISE.

The vital activities by which food is converted into tissue by which the blood is circulated throughout the body, by which the poisonous waste matters are carried off—these functions are properly performed only when the body is freely exercised. To explain this in detail is not here practicable. Nor is it necessary, for the relation is self-evident. Exercise is essential to health.

#### PROPER EXERCISE.

Exercise, therefore, should consist of simple, light, free movements, as much as possible like the play of animals and children. The various movements, stretching, breathing and relaxing, which

have been described in the series of papers\* lately published in *Health-Culture*, entitled "Physical Training as the Basis of Health, Strength and Grace," are all modifications of animal movements, stretchings, yawnings and shakings of the body. They form a system which gives the greatest income force with least expenditure, and are therefore particularly adapted to the needs of those suffering from nervousness.

#### EXERCISE AND WORK.

The nervous man or woman seldom gets enough exercise. Many people to whom this remark is made will reply that they get abundant exercise in doing their work. It should be plainly understood that between work and exercise there are several fundamental differences. The important one for our purpose is that work is done under tension and exercise (that is, proper exercise) is done without tension. In other words, work is work and exercise is play. A young child will spend the entire day in constant activity, running about, jumping, playing and shouting, without serious fatigue, although an adult romping with him will be tired in ten minutes. Why is the child able to do this? Mainly because he moves easily—because he uses for each movement just enough energy to make that movement and no more, while the average man or woman in all motions uses from three times to twenty times the force required.

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\*These papers are soon to be republished in book form.

## OVERDRESSING.

The wearing of too much clothing is an almost universal cause of weakness, and therefore of nervousness. The skin is one of the vital organs of the body. Its most important function is to carry off certain waste and poisonous materials. This function is impeded by excessive clothing, and the waste matter, unable to escape through the skin, is eliminated by some other organ already overtaxed or is retained in the body.

## IMPURE AIR.

Lack of ventilation in offices, living and sleeping rooms and elsewhere is also an indirect cause of nervousness, through the fact that the lungs are unable to get from such air a proper amount of oxygen or to void their accumulated poison.

Overdressing and impure air deprive two of the vital organs, skin and lungs, of the opportunity to function. The general vitality suffers therefrom, and nervousness is one of the results.

## BOWELS AND KIDNEYS.

Inactivity of the bowels and kidneys usually results from improper food or deficient exercise, water or air. These also tend to produce nervousness through permitting the accumulation of retained waste in the body.

## WORRY.

Another common cause of nervousness is worry. Worry itself is the result of false ideals and faulty mental attitudes. Practically, worry is a mental

disease—a disease which can in every case be cured with the intelligent co-operation of the sufferer. The methods to be employed are both physical and mental. The physical methods imply a training of the body in relaxation, and the mental treatment consists of methods for the correction of the faulty ideals which occasion the worry. Worry is simply a useless, pernicious and absurd mental habit.

#### CONCLUSION.

We find, then, that modern nervousness, the most common of all diseases, arises from a combination of influences all tending to so diminish the vital income or to so increase the vital expenditure as to cause a deficiency of nervous force. Among the most common of these influences are overfeeding, overwork, lack of exercise, overdressing, worry and other injurious mental habits. We observe, also, that the cure is to be found, not in drugs, but in such a course of living as shall bring about a correct balance between the income and expenditure of vital energy; that the measures comprise air and exercise, together with avoidance of extreme emotional states and worry. Observance of these common sense methods will provide the only rational and adequate treatment for that prevalent and pernicious disease—modern nervousness.

## SMALLPOX, ITS NATURE, PREVENTION AND CURE.

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### CHAPTER XXII.

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“From smallpox and love but few are exempt,” was an adage during the Middle Ages. For more than a thousand years smallpox, or variola, has been considered one of the most deadly of diseases. At the present time many cases are reported in various quarters, and active measures for its prevention are going forward.

In view of the general apprehension that prevails regarding smallpox, a few words regarding the nature of this disorder and rational methods for its prevention and cure will not be amiss at this juncture.

Smallpox is defined by the orthodox medical works as “an acute contagious, epidemic disease, characterized by an eruption that makes its appearance first as a papule, then develops into a vesicle, and finally becomes pustular, with the formation of a crust.” This is more definite than practical. It would be, perhaps, more satisfactory to state in plain English that smallpox is a complication of symptoms resulting from the following conditions:—(1) Retained waste matters; (2) lowered vi-

tal resistance; (3) certain atmospheric influences; and that all three of these are, to a large extent, interactive and interdependent.

Retention in the system of poisonous waste matters is due to one or more of several causes. Among these may be mentioned overfeeding and other errors of diet, lack of fluids in the body, insufficient activity of the skin, lungs, bowels and kidneys, deficient exercise, confinement, pernicious mental state, such as fear or worry, overwork and so on.

Lowered vital resistance merely means that the functions of the body, digestion, assimilation, respiration, circulation and elimination, do not act with that energy and unanimity which are essential to a proper sustenance of the body as a whole.

Climatic and atmospheric influences, impurities of air and water, are important mainly through their effect in interfering with the action of the eliminating organs. The drinking of impure water will not cleanse the system; nor can the lungs or the skin excrete their poisonous matters in air that is warm, heavy and damp, or otherwise impure. There is evidence that seems to show that impurities in food, air and water, climatic and other influences affecting communities—that these and similar influences affecting the bodily functions, and not contagion, may be accountable for the “epidemic” nature of smallpox and other disorders. However this may be, there is no question but that, deeply, the cause of smallpox may be found in some

combination of retained waste, lowered vitality and atmospheric influence.

#### THE PREVENTION OF SMALLPOX.

Among the methods of prevention employed against smallpox the one most frequently employed is vaccination. The advocates of vaccination make the sweeping claim that vaccination is an absolute preventive of smallpox, and that proper vaccination, in itself, is entirely free from danger. They admit, however, that there is danger of evil results from the use of "impure" or defective vaccine, careless or uncleanly manipulation, &c., &c. The opponents of this procedure claim that there is absolutely no logical or scientific basis for the theory upon which vaccination is based, and that vaccination does not prevent smallpox, since vaccinated people frequently die of that disease. It is further claimed by the opponents of vaccination that the introduction into the blood of the product of a loathsome disease is unphysiological, unwarranted, inhuman and dangerous to health, and even to life. Referring to published statistics, the anti-vaccinationists deny the authenticity of those relating to the alleged immunity of vaccinated persons, and claim that the decrease of smallpox has been due to better sanitation, and that in this decrease smallpox has not kept pace with other disorders of the same class.

Whether or not vaccination is a preventive measure against smallpox is a question upon which authorities differ. It will be granted, however,

even by the most ardent devotees of vaccination, that it is not the only condition which confers immunity—that some people are immune without being vaccinated with cowpox virus.

In discussing the subject at this time we shall not, therefore, consider the question of vaccination as a preventive of smallpox, but will take up those conditions, outside of vaccination, which would command immunity from that disease.

#### CONDITIONS OF IMMUNITY.

Now, how can a person render himself immune against smallpox? In answer, it may be said that the conditions commanding immunity against smallpox are those which will protect the individual against all other diseases. One can render himself practically immune to smallpox as to other diseases by taking measures to prevent the retention and accumulation of the body waste and by maintaining the vital force at the highest possible point.

The important practical question is:—By what methods can this be accomplished? In the first place, proper diet. Let the food be plain and simple, not excessive in quantity or variety, and let the meals be separated by an interval of at least five hours. In many, if not in all, cases two meals are preferable to three, as thousands of intelligent people all over the country can testify. Pastries, rich gravies, sauces, condiments and stimulants should be avoided. Alcohol is especially pernicious.

As to fluids, the safest and best is water, and the safest and best water is distilled water. This may be taken freely on rising or retiring and between the meals. At meal time and for a half hour preceding and two hours after the meal little or no fluid should be taken.

Care of the excretions is of equal importance with diet. The proper action of skin, lungs, bowels and kidneys is essential to health, and, unless there be some gross violation as to diet, such active elimination constitutes practical immunity against the so-called epidemic and contagious diseases.

Free water drinking is the most important influence in regulating the action of kidneys, bowels and skin, also, to a less extent, of the lungs. The proper action of the bowels may be insured by enemas of hot or warm water whenever necessary. In fact, under any circumstances, a weekly enema is a valuable prophylactic measure.

The importance of the skin as an organ of depuration and respiration is not generally understood. A daily bath, warm, followed by a cold sponging, a weekly or semi-weekly sweat or Turkish bath, massage and vigorous friction with flesh brush or Turkish towel—these are among the most practical and simple measures by which the skin may be kept in order.

The action of the lungs in taking in oxygen and in carrying off gaseous poisons may be assured by proper ventilation, by free exercise in the open

air, and by systematic breathing exercises, such as described in this work.

It is safe to say that in the vast majority of cases one who lives according to the spirit of the above directions will be immune against smallpox or any similar disorder.

#### TREATMENT OF SMALLPOX.

Where the disease is present the treatment should be governed by the same principles. Total abstinence from food throughout the five, six or more days of the acute stage, daily colon flushings of tepid or cool water, free drinking of cold water, treatment of the skin several times daily by cool sponge baths, to control temperature and to maintain the activity of the skin functions. Add to this proper ventilation and freedom from worry and panic, and we are in possession of a curative armamentarium which robs smallpox of its terrors, and registers another triumph for common sense over empiricism, blind routine and pseudo science.

## **SUNSTROKE—ITS CAUSATION AND TREATMENT.**

### **CHAPTER XXIII.**

Among the dreaded incidents peculiar to the heated term "sunstroke" holds first place. The term insolation, or sunstroke, is rather loosely used to describe three states, which, although similar in causation, are essentially different in character. Those three states are better known as heat prostration, true sunstroke and thermic fever.

Heat exhaustion or heat prostration is simply a faint resulting from the prolonged exposure of an already weakened or disordered system to a high temperature, either natural or artificial. True sunstroke is always the result of direct exposure of the body to the rays of the sun. Thermic fever (hyperpyrexial insolation) is a violent fever (106 degrees to 112 degrees), with full, jerky pulse, flushed face and coma, or insensibility. There is another variety of heat stroke, quite rare, marked by coma, cold skin, slow pulse and lowered temperature. This is known as the asphyxial form of insolation, or heat prostration.

Now, for all these forms of heat prostration the immediate cause is heat, and yet it should be clearly understood that heat will cause prostration only

when certain other conditions are present—that for every case of heat prostration, sunstroke or thermic fever there must be certain causative conditions, one of which is always high temperature—that, in a word, heat prostration is caused by a combination of conditions, one of which is always high temperature, but that high temperature alone cannot produce heat prostration.

For the sake of clearness, let us put this in another way:—The factors leading to heat prostration may be divided into two classes—external and internal, those acting outside the body and those acting inside the body. Among the former may be mentioned lack of ventilation, humidity and heat. Among the latter we may consider any state of the internal organs which tends to lower the vital resistance or to interfere with the regularity and equilibrium of the vital functions.

Now, inasmuch as it is our purpose to study how to avoid heat prostration, it will be profitable to determine how far we may control the conditions producing it. Over the external conditions—high temperature, humidity and lack of ventilation—we can have but little control. Sufferers from indoor heat prostrations are usually firemen, engineers, stokers, &c., who are obliged to work in an overheated, unventilated atmosphere.

But we have seen that external conditions alone will not produce heat prostration. Let us then consider the internal conditions conduced to heat prostration and determine whether or not we may

so control these as to render heat stroke improbable or even impossible.

In studying the question we find that, out of a large number of people exposed to the same conditions as regards temperature, ventilation, humidity and labor, only a few succumb. We find, further, that these few are not the weakest of those possessing the least natural power of vital resistance, but we note that those subject to heat prostration are always those who have, in one or more of several ways, made their bodies so susceptible that they were unable to resist the high temperature because of their condition.

Now, what are those acts or those omissions which render the human body susceptible to sun-stroke or to heat prostration? In the main, these are well known and may be simply stated.

First of all, stimulation. Rarely, very rarely, if ever, does heat prostration occur except in cases of alcoholic stimulation. In fact, some authorities have denied the possibility of heat stroke except under stimulation. However this may be, in the vast majority of cases the heat stroke is rendered possible by stimulation. Beer drinking in summer is all too common even in these enlightened days. There is no question that when one is heated a large draught of ice cold beer is cooling and refreshing for the moment. But afterward—. First of all, there is the irritant effect of the beer upon the mucous membranes, which leads to reflex disturbances of the circulation and other vital

functions. Then there is the poisonous effect upon the heart, causing a temporary increase in the rapidity of its stroke. Furthermore, there is the additional work thrown upon the secreting organs in their effort to promptly throw off the irritant. There is, of course, the immediate result of making the drinker feel cooler. This feeling—a feeling merely—is produced partly by the paralysis of the nerves of sensation and partly by the mechanical contact with the cool fluid. The feeling of coolness soon passes off and is succeeded by a still more marked sensation of heat and discomfort. Another drink brings temporary relief. Soon another is necessary, and another, and then another, until the stimulation, the depletion and the heat combine to cause a collapse, which is apt to be attributed solely to the heat.

Overeating is also a frequent condition rendering heat stroke liable. Overfeeding, particularly in hot weather, is a heavy tax upon the organs, causing such overexertion and plethora as to greatly reduce the vital resistance.

Another condition frequently leading to heat prostration is mental excitation. Worry, fear, anxiety, anger, excitement—all these cause derangement of the vital processes, which greatly increases the liability to heat stroke.

Lack of cleanliness also greatly enhances the danger of heat prostration. The principal function of the skin is to throw off a certain fluid, the perspiration, which is heavily laden with poisonous

inhabiters. The perspiration is excreted through minute openings, known as the pores, of which there are about seven million in a man or woman of average size. Now, when the perspiration is allowed to dry on the skin it forms a coating which, with the addition of dust and other foreign matter, clogs up the pores and prevents the poison from escaping. The poisonous matters thus kept in the system throw additional work upon certain organs and disturb the action of others and so lower the vital resistance as to greatly increase the danger of heat stroke.

Lack of water is another important factor in conducing to heat prostration. Free water drinking means increased elimination of poisonous waste matters. The water enters the body clean and leaves it laden with impurities. Abundant water drinking means free elimination, and free elimination is perhaps the most important factor in health, strength and vital resistance.

We find, then, that heat prostration, although caused directly by a high temperature, is rendered possible only by a certain condition of the individual; that this condition is caused by stimulation, overfeeding, mental inquietude, uncleanliness or lack of water in the system; that in every case of heat prostration, sunstroke or thermic fever, we find one or more of these conditions present. The prevention of heat stroke, then, is simple. Avoid stimulants; don't overeat; keep cool; bathe frequently; drink freely of cool, pure water.

As to treatment of heat prostration, quiet and cold applications to the head and body are usually all that is necessary. In the asphyxial form of isolation the indications are for warm applications. Sometimes the use of the stomach tube is called for. Stimulation in such cases is not advisable.

## **THE BEDROOM CHAIR AS A GYMNASIUM.**

### **CHAPTER XXIV.**

Although there is no doubt in my personal opinion that the highest possible degree of physical perfection may be attained by the practice of "free" gymnastics—that is, of gymnastics without apparatus—yet it is undoubtedly true that the practice of "free" exercise is to many people less interesting than movements made in connection with some apparatus or instrument.

The disadvantages of apparatus gymnastics are often due not as much to their use as to their abuse. For instance, the main injuries due to apparatus work are local development (that is, undue development of one part at the expense of the general physical welfare) and overstrain. These should be guarded against, and both can be prevented by using proper apparatus, by moderation and by corrective exercise. Apparatus should be simple and convenient and should be of such a nature that in using the muscles not only of a portion but of the entire body can be exercised.

As an apparatus for gymnastics, the bedroom chair meets these requirements quite fully. It is simple, it is convenient, and it can be used in move-

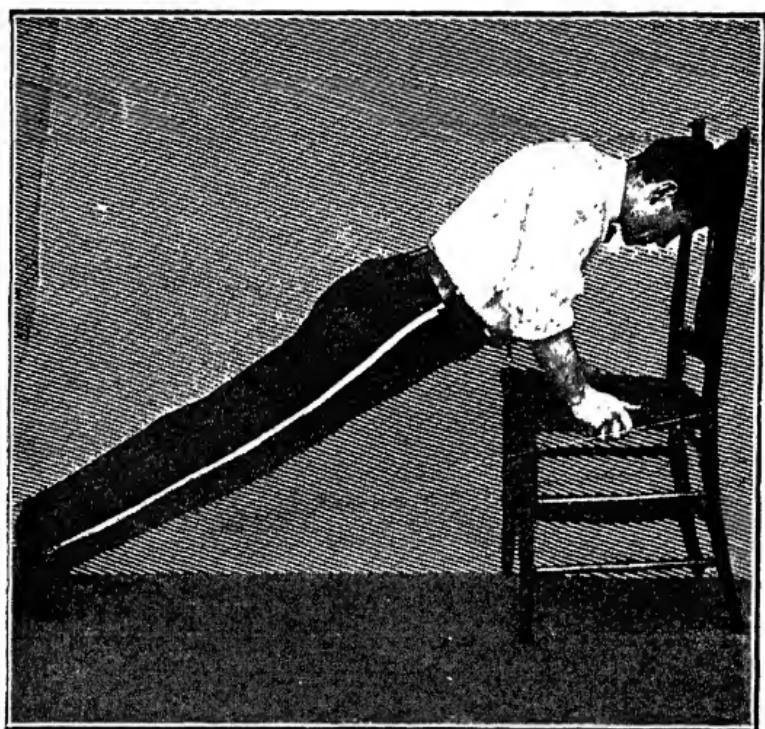


Fig. 1.

ments which bring into action practically every important muscle in the body.

The series of exercises described in this chapter have been carefully devised with a view, first, to the formation of proper habits of carriage; second, to increase in the activity of the internal organs; third, to the development of the general muscular system, and, fourth, to the encouragement of grace and bodily poise.

These exercises should be practised exactly as described, and should always be followed by relaxing exercises, as otherwise they would tend to stiffen the muscles and interfere with the grace and freedom of motion. The time devoted to them will vary with the strength of the student. Another point is the weight of the chair used. For a weak person, the lightest obtainable chair is quite heavy enough. The robust may execute the movements with a heavier chair.

Care should be taken that there is sufficient room to swing the chair without doing damage.

#### EXERCISE NO. 1.

Place the chair in front of you and grasp the seat with both hands, arms straight. Now, take full breath, and, still keeping the hands in position, step backward until the feet are so far distant from the chair as to throw the weight of the body largely upon the arms. Then, still holding the breath, straightening the arms, raise the body to its original position. Notice that the farther from the chair

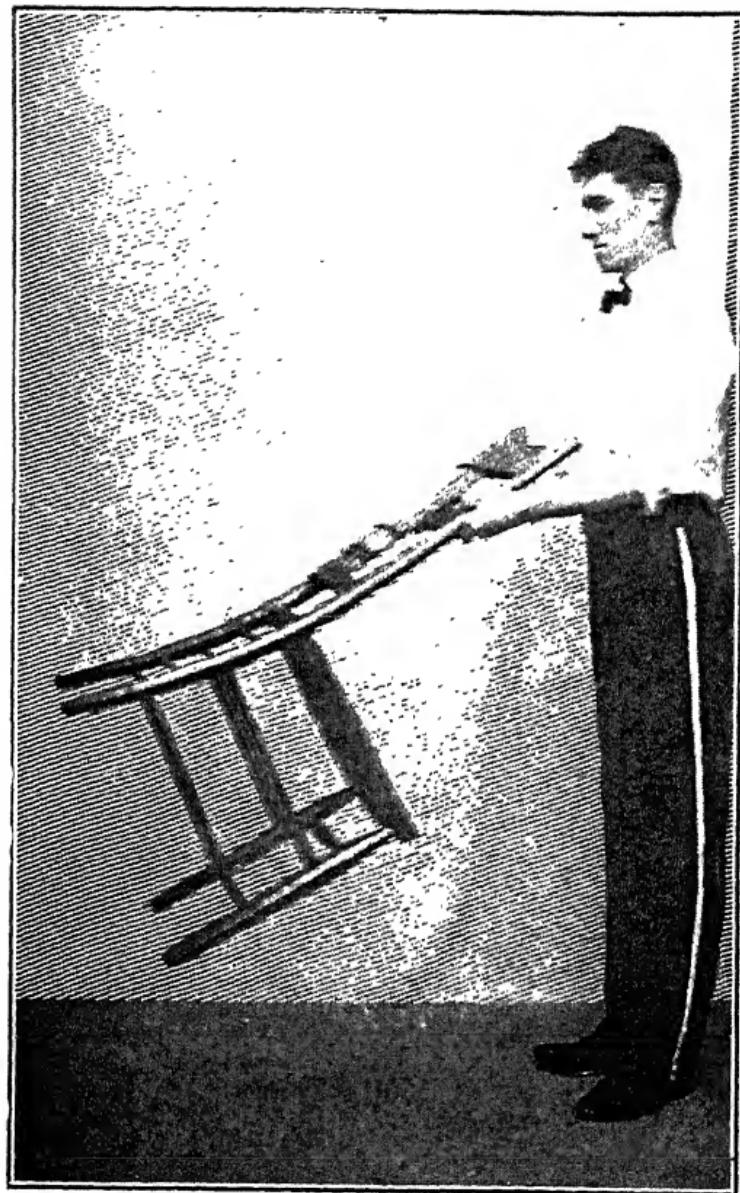


Fig. 2.

you place the feet, the more is thrown upon the hands and the more severe becomes the exercise. (See Fig. 1.)

This movement is of value in broadening and deepening the chest, in replacing round shoulders and protruding collar bones, and in developing the muscles of the chest, back, shoulders and arm. It is particularly useful in increasing the size and power of the triceps, which is the largest, handsomest and perhaps the most useful muscle in the arm. The triceps lies at the back of the arm and is used in all pushing and thrusting actions.

#### EXERCISE NO. 2.

Stand in front of chair as in previous exercise. Now take breath, reach forward and grasp the back of the chair (as shown in Fig. 2). Straighten the body, holding the chair, as shown in the figure. Then, without bending the body and still holding the lungs full of air, slowly lift the chair upward by bending the arms, until it is on a level with the head. Then lower to the floor, after which the lungs may be deflated, allowing the breath to escape in a gentle sigh.

This exercise especially develops the front of the upper arm, the biceps, the muscles of the forearm, also certain important muscles of the back and shoulders.

#### EXERCISE NO. 3.

Stand in front of the chair and grasp seat, as in Exercise No. 1. Then, holding head, chest, arms and shoulders rigid, gradually straighten the back,

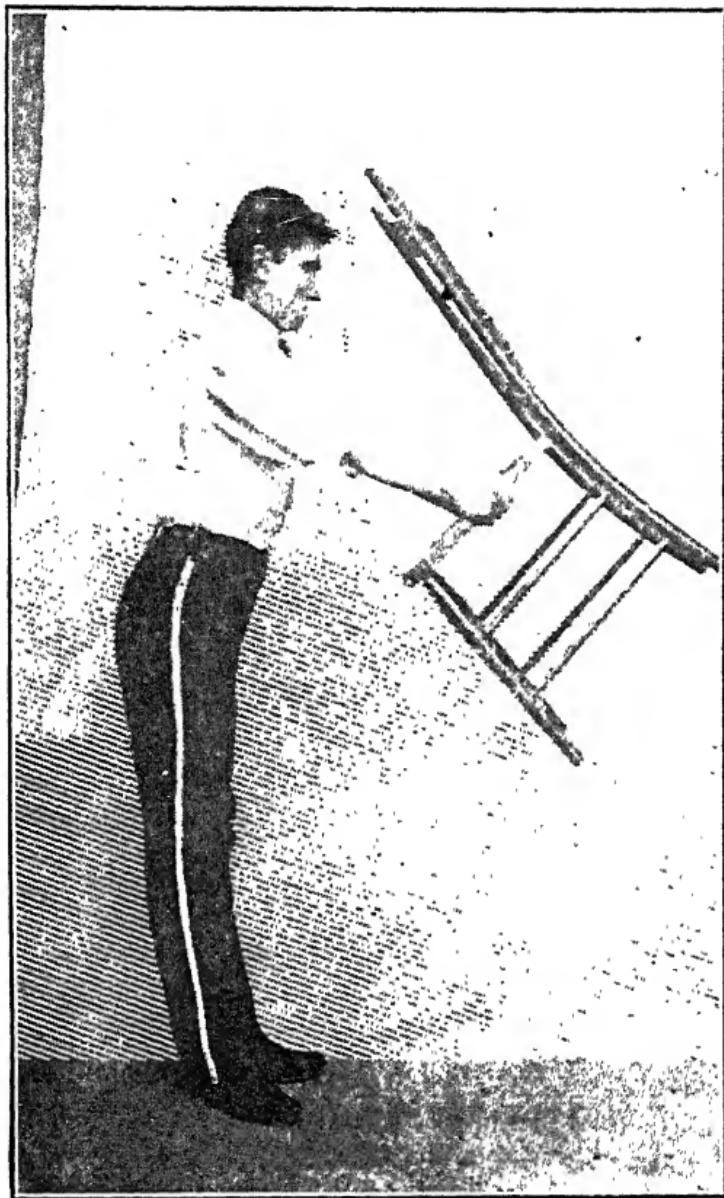


Fig. 3.

lifting the chair up to a level with the head. (See Fig. 3.)

This movement calls for activity of the powerful and important muscles of the back. In all lifting, bending or similar exertion, in walking, running or stair climbing, these muscles of the back have an important function in sustaining the weight of the superincumbent body.

#### EXERCISE NO. 4.

Stand exactly as shown in Figure 3, body motionless, lungs full. Now, holding the upper part of the body motionless, swing the body as on a pivot around to the right as far as possible, without moving feet. Then turn to the left, twisting the body from the legs upward, still holding the chair extended.

This movement is designed to call into action all the muscles of the body, bearing especially upon the muscles of the waist. The muscles of the lumbar region ("the small of the back") and the abdominal are by far the most important muscles in the body. Whatever work is being done by the limbs, it must be supported by the waist muscles. A man who is weak here is weak all over. A woman, who by inactivity or corseting has allowed these muscles to become weak will suffer from a dozen ailments directly traceable thereto. The last two exercises have been especially devised to bring these muscles into activity, and their practice cannot fail to strengthen this most important region.



Fig. 4.

## EXERCISE NO. 5.

Stand with chair back toward you. Place feet well apart. Take deep breath and hold same during the exercise. Grasp chair by the back, raise it in front and swing it slowly around to right, throwing weight of the body on the right leg. Then swing it around in front and to the left in a wide circle. And so from one side to the other two or three times. Then lower the chair to the floor and exhale breath. (See Fig. 4.)

## EXERCISE NO. 6.

Stand easily, feet well apart, take breath and hold during the exercise. Grasp chair by the back, as in Exercise No. 5, but higher up. (See Fig. 5.) Now bend arms until the forearms are on a level with the elbows. Then swing the chair gently from side to side, keeping the arms in about the same position and allowing the chair to swing from them with a pendulum-like motion.

This exercise develops the entire arm, shoulder and chest and calls for general activity of the muscles of the back, abdomen and legs.

Of course, these chair exercises are of greatest possible value in developing hands, wrists and forearms. They are also useful in developing general muscular control and co-ordination.

Useful, however, as are these chair exercises, they will be certain to interfere with perfect grace and freedom of motion unless they are practiced in connection with certain corrective exercises.





304.

Fig. 6.



Fig. 7.

The best corrective movements for this purpose are the following:—

EXERCISE NO. 7.

Stand easily, one foot slightly advanced. Now inhale breath, at the same time raising the arms, chest and face until all are stretched firmly upward. (See Fig. 6.) Then, without pause or holding the breath, allow arms, head and body to fall limply forward toward the floor, at the same time exhaling the breath in a gentle sigh. (See Fig. 7.)

EXERCISE NO. 8.

Stand easily, feet well apart, swing arms and body gently from side to side, imitating the motions of a man scattering grain. Do this as gently as possible, allowing the whole body and the head to swing in harmony with the arms.

Exercises with a chair should always be followed by the practice of Exercises Nos. 7 and 8, for the purpose of preventing the rigidity which is always certain to follow any severe muscular exertion, unless corrected by relaxing movements.

As a whole, the practice of this simple system of chair exercises will bring about results that will surprise many; while many of those who practice them for the first time will discover a new interest and utility in this very prosaic article of furniture.

## **Hydrotherapy, or Water Cure.**

### **CHAPTER XXV.**

The chief value of water as a therapeutic agent seems to be through its power of affecting the temperature of the part of the body to which it is applied. Besides this there are other effects not well understood.

Warm or hot water applied to any portion of the body causes an immediate increase of blood supply, and therefore of temperature. If the application be very brief this change is not likely to be followed by any marked reaction. If, however, the application of heat be more protracted the increased circulation and heightened temperature are followed by a reaction, as it is called, during which the circulation and the temperature are reduced. On the other hand, a brief application of very cold water will in most cases be followed by an increase of circulation and a rise of temperature, while a longer application of water less cold will produce a less marked reaction, or, in many cases, no apparent reaction whatever. Of course, all this is complicated by the conditions, as to the character of the disorder, vitality of patient, &c.

Among the many advocates of the water cure principles a large variety of baths, gushes, pours and packs have been devised. As a matter of fact, however, such multiplicity of application is quite

unnecessary and is merely confusing. For practical purposes a few only are necessary. In these papers we shall divide the applications of water into packs and baths, with a few words on pours, gushes, &c.

A pack is the name given to the method of applying water to the body by means of a wet cloth placed in position and allowed to remain so for some time. Any part of the body may, of course, be so treated, or the whole body at once. The necessities of the case are covered by the full pack, the half pack, the loin pack, the rump pack, the shoulder pack, the throat pack, the leg pack, the calf pack, the foot pack and the hand pack.

#### THE FULL PACK.

As to the giving of the full pack we can do no better than to quote from M. Platen, a well known German practitioner, of the "Wasser-kur":—

"This, sometimes called the wet pack, is one of the most effective methods of the water cure, **acting** rather after the fashion of the wet sheet, **but** achieving its purpose in a less severe manner.

"A friend or attendant must be at hand, also a bed, several blankets, 7 or 8 feet by 6 feet wide; two or more linen sheets, 6 1-2 feet long by 4 1-2 feet wide and water at a temperature of 66-72 degrees Fahrenheit.

"Spread the blanket flat on the bed so that it will reach half way up the back of the head when the patient lies down. Over this the wet sheet is placed so as to reach almost to the upper border

of the blanket. Over that part of the sheet upon which the lower part of the back is to rest is placed a damp towel. The bed is shown so prepared in Figure 1.

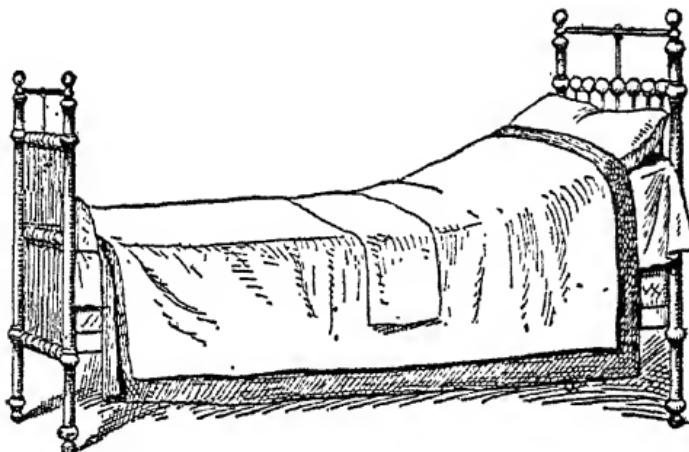


Fig. 1. The Whole Packing. (The Open Packing).

"Upon this bed the patient lies down at full length (see Fig. 2). The patient raises his arms to allow the sheet to be pulled around, and this must be wide enough to make a double fold over the abdomen. Then he puts his arms down straight and is completely covered.

"The operator carefully draws the sheet around the patient and tucks it closely about the shoulders and neck. Each leg is wrapped separately and closely covered with the sides of the sheet. (See Fig. 3.) Every precaution should be taken that each portion of the body be in close contact with the wet cloth, which must be wrapped as smoothly and tightly as possible.

the body is thoroughly packed in the wet sheet (Fig. 4) the attendant will pull over the



Fig. 2. The Wide Packing. (The Patient Lies on the Open Packing).

further side of the blanket and draw it firmly around, tucking it in as before. Finish by wrap-

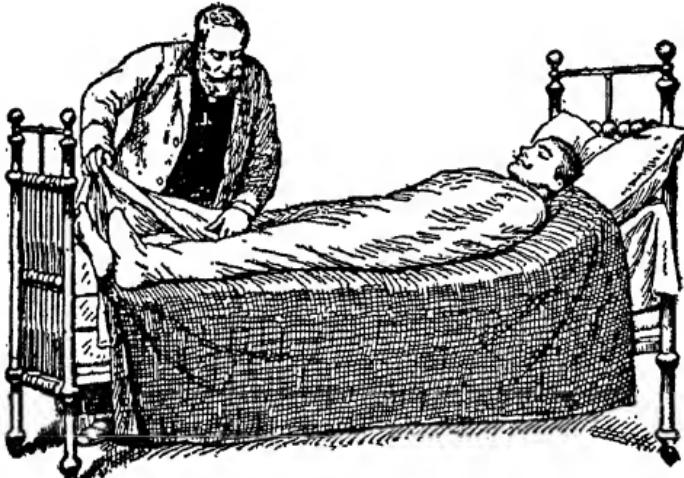


Fig. 3. Wrapping Last Leg in the Wet Sheet.

ping the other half of the blanket about the patient, tucking the ends closely about the neck and shoulders are uncovered. (See figs. 5 and 6.)

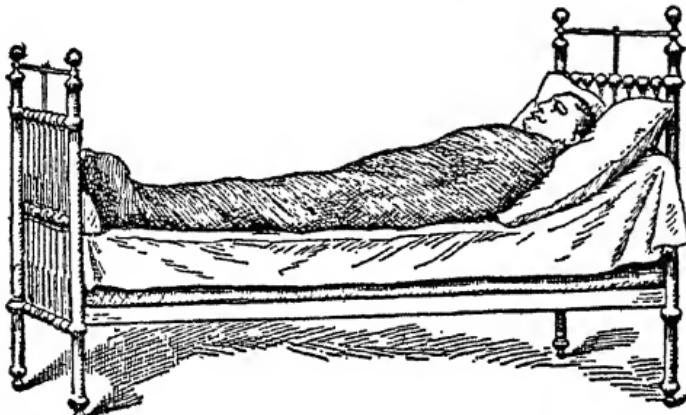


Fig. 4. The Whole Packing. The Patient Lies in the Wet Sheet.

To increase the effect other coverings may now be added. Patient may remain in the pack from one to three hours, according to his strength and to the effect desired. The longer he remains in

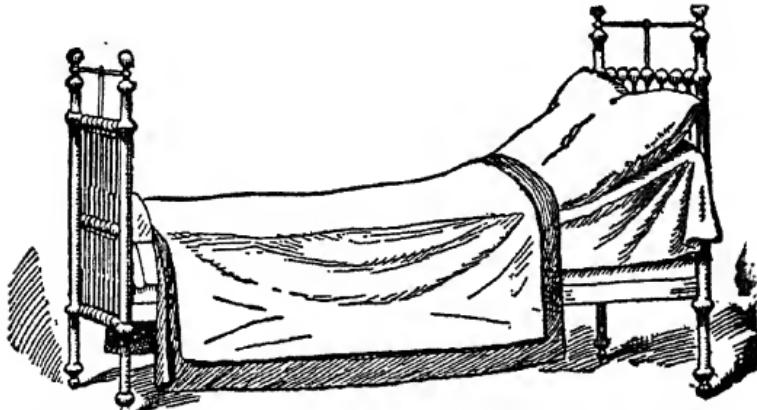


Fig. 5.—Wet Sheet and Blankets Prepared for Three-quarter Pack.

the pack and the more covering used, the greater is the effect.

The effect of the cold pack is peculiar. Like the other hydrotherapeutic measures involving the use of cold water, the object of the full pack is to produce a reaction in the form of accelerated circulation and raised temperature. In the full pack, however, the heat thus generated is concentrated within the body and its radiation prevented

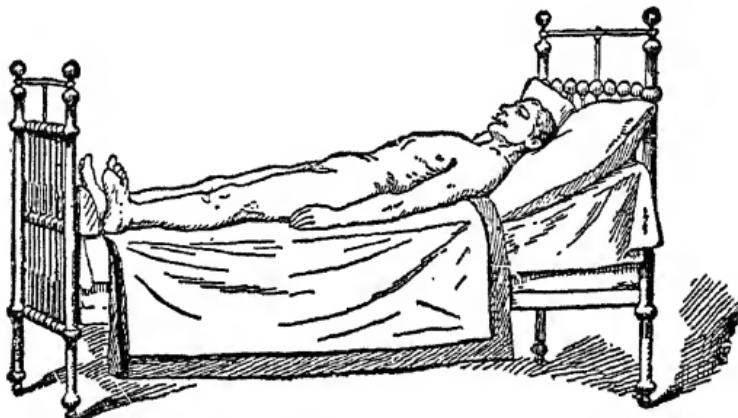


Fig. 6.—Ready for Three Quarter Pack.

because of the many thicknesses composing the pack. The body heat so produced soon raises the temperature of the sheet next the body, and then, the heat production of the body still going on, the skin is subjected to a sort of Turkish bath in the heat produced by the stimulated body.

The full pack is indicated in all conditions of lowered vitality and in local inflammations of internal organs. The full pack has many of the advantages of the Turkish bath.

The remarks made concerning the full pack apply with modifications to packs in general. Packs may be applied to any part of the body.

The three-quarter pack has a wide range of application, and in many cases, such as nervous people, who do not like to have their arms confined, for children, &c., the three-quarter is preferable to the full pack. It is applied exactly as the full pack, save that the sheets and blankets are placed further down upon the bed and the patient's arms and shoulders are uncovered. (See figs. 5 and 7.)

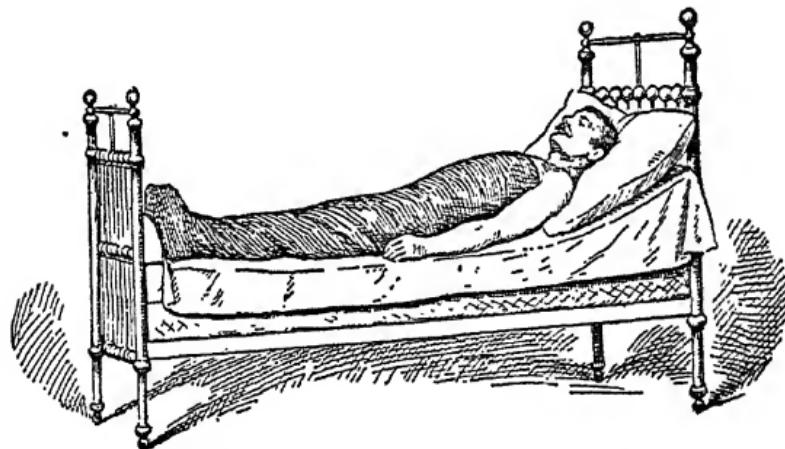


Fig. 7.—Three-Quarter Pack Complete.

#### THE HALF PACK.

The half pack is applied like the packs previously described, save that it extends from the navel downward, leaving the body from the waist up uncovered.

**THE LOIN PACK.**

The indications for the three-quarter pack and the loin pack are the same as for the full pack.

The loin pack is a treatment reaching from the shoulders to the hips. A woollen shawl may be used as a covering.

The loin pack is of great value in all disorders of the abdomen and pelvis. It is of particular service in the pains of dysmenorrhea, or difficult menstruation, and in other varieties of pelvic congestion, peculiar to women. Of course, in most, if not all, of such cases, the local difficulty is merely an indication of an underlying constitutional depression or disturbance. It will be understood, of course, that neither hydrotherapy or any other "system," no matter how complete in itself, can be properly applied, save by a practitioner who has a thorough knowledge of the workings of the body.

**THE ABDOMINAL BANDAGE.**

This is of all the packs, perhaps, the most useful and best known. For an adult of average size the proper size for the bandage is from fifteen to eighteen inches wide and about one and one-half yards long. The woollen bandage to cover it must be two or three inches wider. Dip the cloth for half its width into cold or cool water. Then fold lengthwise and apply to the body, the wet side next the skin, the dry half being outside. The woollen cloth is then folded and applied in the same way. (See figs. 8, 9 and 10.)

If the patient is weak, the abdominal pack may

be applied in bed like the other packs just described. (See fig. 16.)

#### THE THROAT PACK.

The throat bandage is applied in the same way as the other packs. A linen towel, folded to four thicknesses and covered by a woollen wrapping, serves very well for this purpose.

The throat pack is a most effective treatment for tonsilitis, pharyngitis and other inflammation of the lining membrane of the throat. It is valuable also

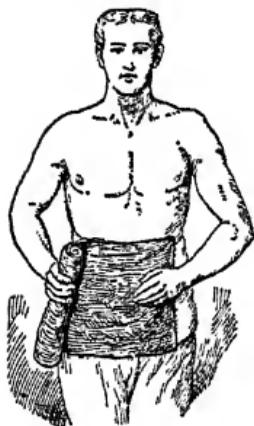


Fig. 8.



Fig. 9.



Fig. 10.

in torticollis, or muscular rheumatism of this region. It has been claimed that goitre (bronchocoele) has been caused to disappear by the nightly application of the throat pack.

#### THE HEAD PACK.

This is useful in many conditions, such as nervous headaches or headaches from cerebral anemia, that is, insufficient supply of blood to the head.

In these cases the application should be as follows:—Dip a linen towel or other linen cloth, in cold or cool water, and wrap it closely about the head, covering it with a woollen cloth as for the other packs. This may be allowed to remain in position for several hours—over all night, if desired.

When the headache or other disorder is of a congestive character, with flushed face and sensation



Fig. 11.—The Throat Pack.



Fig. 12.—The Arm Pack.

#### OTHER PACKS.

of fulness in the head, the above treatment should, of course, never be given. In such cases the indications are for the application to the head of cloths dipped into cold water and renewed as soon as they become warm.

There are numerous other packs, all useful and very easy to apply. Among these may be mentioned the leg pack, a particularly strong treatment for sciatica, rheumatism, stiffness or lameness from over-exertion, sprains, &c., &c.; the calf pack, the foot pack, often used for sprains, al-

though not, perhaps, so valuable just here, as the more usual treatment with the tight elastic bandage; the arm pack, the hand pack—all these are most useful, all are easy of application. The indications for their use may be judged from what has already been said.

We have now considered all the more important packs, with such general directions for their administration as may be given in general terms. But

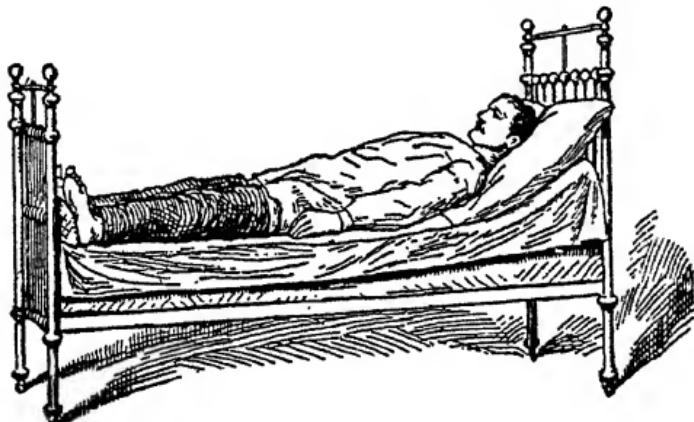


Fig. 13.—The Leg Pack.

hydrotherapy comprises much more than pack. Other methods of water application, immersions, gushes, pours, &c., are also important and useful. These we will study in the next article on this sub-

Besides the packs, the application of which we have already studied, hydrotherapy includes a great many other measures by which water is so applied to the body as to influence elimination, control the blood distribution or stimulate the activity

of the vital organs. The number of these devices has been unnecessarily increased in accordance with the notions of various water cure "doctors."



Fig. 14.—Applying the Calf Pack

We give herewith a brief description of the most useful and important of these applications, with the leading indications for their use.

#### THE FULL BATH.

The full bath, as the name implies, consists in the application of water simultaneously to all parts of the body, and is generally taken by immersing the body in a large tub.

## THE FULL HOT BATH.

The hot bath (95 to 100 degrees F.) is most highly praised in many quarters as a daily routine. It is used extensively by the Japanese. The public baths of Tokio are visited daily by from three to four hundred thousand people, all of whom take the bath hot. The Japanese "rickshaw" men will whirl their passengers as fast as a horse can trot for forty miles a day. They generally get two hot baths a day. Despite this, however, and much other evidence of a similar kind, the advisability of the general daily use of the hot bath may be questioned.

In fatigue or general constitutional weakness the hot bath is of great utility. It should be followed by an application of colder water.

## THE WARM BATH.

The warm bath is for general use perhaps the best bath for the average person. It is cleansing, refreshing, relaxing, restful, sedative. In fatigue, nervousness, irritability, insomnia, excitability and similar conditions the warm bath is most valuable. When used as a relief for fatigue or as a regular daily bath, the warm bath may be followed by a rapid cold sponging of the body.

## THE COLD BATH.

The cold bath is one of the most powerful applications known to hydrotherapy. In the early days it was a favorite method, but the many injurious results caused it to be generally discarded.

Personally I question very much whether the cold bath is ever advisable for any one. It is a powerful stimulant, and has all the disadvantages and dangers of a stimulant. The cold bath is followed by one of two results. If the patient is weak there



Fig. 15.—The Calf Pack.

is no reaction, and the bath is followed by coldness, pallor and even blueness of the skin, with sense of discomfort and general vital depression. If the bather is stronger, the immediate result of the cold application is the reaction. The skin is in a glow, the eyes are bright, there is general vital acceleration and a delightful sense of exhilaration.

But later there is a secondary reaction, more gradual but inevitable, with lowered vitality and more or less sense of depression. This secondary reaction, however, coming several hours after the bath, is not usually attributed to it. In a word, the cold

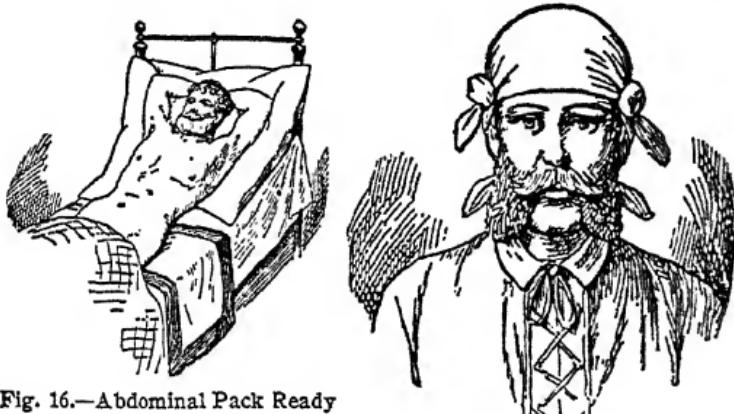


Fig. 16.—Abdominal Pack Ready to be Applied.

The closed Head Pack.

bath causes an exhibition, rather than an increased generation of energy, and therefore ranks as a stimulant.

The cold sponging of the body is one of the most generally valuable of all hydropathic measures. In all cases of fevers, either acute or continued, in general vital depression from any cause whatsoever, the cold sponging is of greatest utility. One method of performing this is to expose a portion of the patient's body at a time, to sponge this and then to dry it. Next another portion of the body and so on until the entire body has been sponged. The object of this sponging is not so

much to reduce temperature by contact of cold water (as in the so-called "Brand method"), but to cause such general vital stimulation that the matters producing the disturbance of the heat function shall be carried off.

#### THE COLD SITZ BATH.

The cold sitz bath is another application of wide usefulness. In all inflammations of the generative organs or of the rectum, in fact of any of the abdominal viscera, the short cold sitz bath is of greatest value. In the so-called female troubles the cold sitz bath has preserved many sufferers from the surgeon's knife, and would save many more if generally applied. The cold sitz bath is also of great value as a general tonic.

#### THE WARM SITZ BATH.

The warm sitz bath, like the warm full bath, is of value as a general sedative. In difficult child-birth it has been found of value in relaxing the tense structure and thus facilitating parturition.

Not the least valuable of the measures which are classed under the general name of hydro-therapy are the douches and the pours.

Douches may be divided into two classes, those applied to the inner surfaces of the body, the mucous membranes, and those applied to the skin. The former include the nasal, the aural (or douche for the ear), the vaginal and the rectal douche. Those are, as a rule, applied by means of fountain syringes. The fountain syringe consists of a rub-

ber bag, or sometimes a vessel of wood or metal, to which is attached a rubber tubing. The tubing is affixed to a hard rubber or metal tip which is specially adapted to the orifice for which it is designed.

The douche is applied by filling the bag or vessel with water. It is then suspended at a height of five or six feet above the place to be treated. The treatment is given by inserting the rubber tip in the organ to be douched and allowing the water to flow in through the force of gravity.

The general indications for these internal douches are two, lack of tone of the part and accumulation of waste in the form of mucous or other excretions. Where lack of tone is present with excessive mucous deposits, as in otitis (inflammation of the ear), coryza (common cold), vaginitis (inflammation of vagina) and so on, the douche may be either very cold or hot as can be borne (say from 100 degrees to 110 Fahrenheit). Where the object is merely to cleanse the part, as, for instance, in the rectal douche, or colon flushing, a moderate temperature is preferable.

The treatment to which the term douche is generally applied is simply a stream of water thrown from a hose with more or less force and applied to chest, limbs, back of neck, upper part of back, lumbar region (small of the back) or limbs, as the case may require. The douche may be cold or hot and cold alternately. It is of great value in strains, muscular rheumatism or other local inflammations and as a general tonic and eliminant.

The pours are given for the same purpose as the douches. They are, however, simpler as regards the methods of application. The only apparatus required is a large pitcher from which warm or cold water is poured upon the patient in accordance with the requirements. The indications for the cold pour are any form of local inflammation, gout, rheumatism, muscle strains, &c. In functional nervous disturbances the cold pour or the cold douche along the spine is of the utmost value.

#### OTHER WATER APPLICATIONS.

Cold water applications to hands and feet, made by immersing these members in cold water, are most beneficial in cases of habitual coldness of hands and feet.

Self-massage, with bare hands dipped in cold water, is also a valuable measure devised by the writer. The bather may stand in a tub in which there is about six inches of water. He may then wet both hands and thoroughly rub the body, first the face, head and neck, then arms and shoulders, and so on. There is in this treatment a threefold benefit; first, the cleansing and stimulation of the cold water on the skin; second, massage, and third, the vigorous exercise of applying it.

Another very beneficial bath is the alternating foot bath. For this two vessels are needed, one filled with hot water the other containing water as cold as can be procured. The feet are immersed first in the hot and then in the cold water, then again in the hot, and so on for twenty minutes,

allowing three or four minutes for each immersion and always ending with the cold. This bath is a powerful and harmless general tonic. It accelerates and balances the circulation, stimulates the action of all the vital organs and assists in the elimination of poisons. This and the cold massage bath just described are of the utmost value as general tonic applications.

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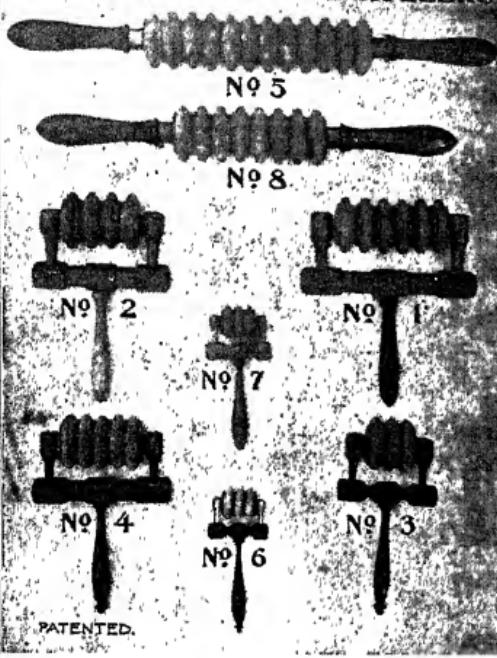
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Fig. 120.



Fig. 121.



Fig. 122.



Fig. 123.



Fig. 124.



Fig. 125.



Fig. 126.



Fig. 127.



Fig. 128.

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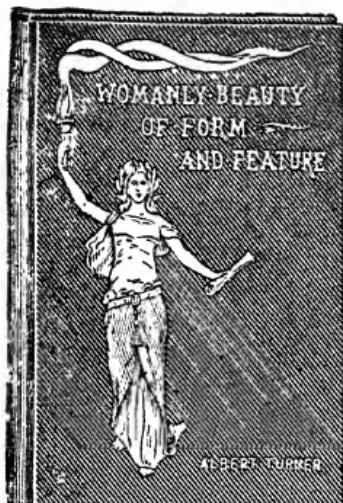


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